Implementation of Revisions to Exotic Aquatic Plant Regulations

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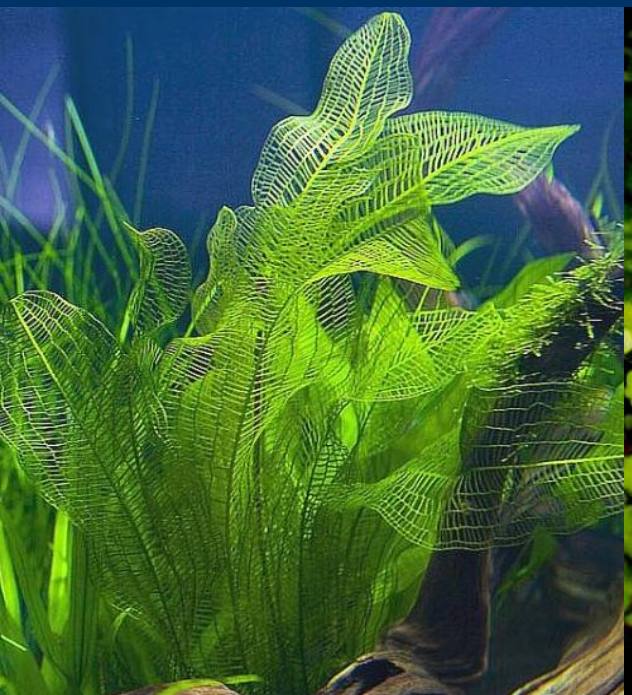
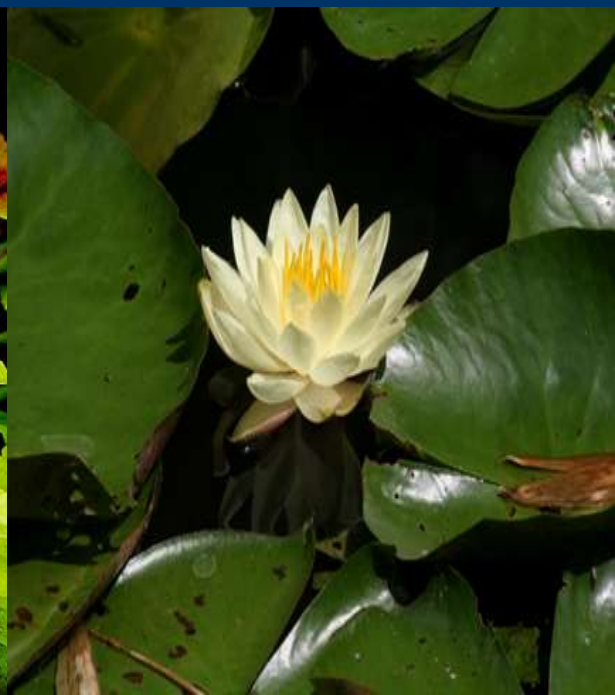




Current Status of Exotic Aquatic Plant Regulations

- TPWD has regulatory authority over the importation, possession, sale or placement into water of the state of exotic harmful or potentially harmful aquatic plants

Current Status of Exotic Aquatic Plant Regulations

- Some exotic aquatic plants have been identified as harmful or potentially harmful. The sale, purchase, or possession of these plants is prohibited.
- Prohibited plants may be possessed with a permit (such as water spinach).
- Permits have conditions to minimize environmental risk.

Disadvantages of Current System

- Adding new plants is a lengthy process, making it difficult to respond to new threats.
- Non-listed species may become established before they can be listed.
- This can lead to environmental damage and economic costs.

Development of a New Regulations

- During the last legislative session, TPWD was directed to publish a list of exotic aquatic plants that are approved for use in Texas without a permit
- TPWD was also directed to develop rules that are as permissive as possible without allowing plants that pose environmental, economic, or health problems
- New rules will be considered by the Texas Parks and Wildlife Commission in January 2011

Development of New Regulations

- TWPD has compiled a list of exotic (non-native) aquatic plants (including macroalgae) currently imported into Texas.
- TWPD has sought input from persons and businesses that will aid in adding or deleting plants from the current draft list.

Development of New Regulations

- All plants on the draft list (with the exception of microalgae) are being evaluated for potential risk to aquatic environments using a scientific risk analysis based on Pheloung et al. (1999).
- If a plant has a low risk of invasiveness it will be placed on the approved list.
- Permits for possession of some plants will be maintained.

Definition Highlights

- Exotic aquatic plant - nonindigenous aquatic plant not normally found in Texas
  - Includes vascular plants, macroalgae, microalgae, genetically modified organisms, and hybrids of exotics
- Approved list – exotic aquatic plants that can be possessed without a permit
- Ineligible species list – includes rejected and previously prohibited species
  - Will be maintained by TPWD and not be part of the rule

Risk Assessment

Collect Background information that may includes:

- **History in Texas**
- **History of invasiveness**
- **Length of time since first introduced**
- **Control techniques and efficacy**
- **Economic benefit**
- **Environmental and agricultural impact if established**
- **Native range and climate**

What is an Aquatic Plant?

Any member of the Kingdom Plantae, as documented using the most recent posting of the Integrated Taxonomic Information System, that is typically found in either aquatic or riparian habitats.

Pheloung et al. (1999)

A. Biogeography/History

Domestication

1.01 Is the species highly domesticated?
1.02 Has the species become naturalized?
1.03 Does the species have weedy races?

Climate

2.01 Species suited to target region?
2.02 Quality of climate match?
2.03 Broad climate suitability?
2.04 Native or naturalized in areas with similar climate?
2.05 Does the species have a history of repeated introductions outside its native range?

Pheloung et al. (1999)

Weed Elsewhere

3.01 Naturalized beyond native range?
3.02 Garden/Amenity/disturbance weed?
3.03 Recreational weed?
3.04 Environmental weed?
3.05 Congeneric weed?

B. Biology/Ecology

Undesirable traits

4.01 Produces spines, thorns or burrs?
4.02 Allelopathic?
4.03 Parasitic?
4.04 Unpalatable to fish and wildlife?
4.05 Toxic to animals?
4.06 Host for pests and pathogens?

Pheloung et al. (1999)

Undesirable traits (continued)

4.07 Causes allergies or toxic to humans?
4.08 Creates flood or fire hazard
4.09 Is shade tolerant
4.10 Grows in infertile soil or oligotrophic Water?
4.11 Climbing or smothering growth habit?
4.12 Forms dense thickets or mats?

Plant type

5.01 Aquatic?
5.02 Grass?
5.03 Nitrogen fixer
5.04 Geophyte

Pheloung et al. (1999)

Reproduction

6.01 Evidence of substantial reproductive failure in native habitat?
6.02 Produces viable propagules?
6.03 Hybridizes naturally?
6.04 Self-compatible or apomictic
6.05 Requires special pollinators?
6.06 Reproductio by vegetative fragmentation
6.07 Minimum generative time

Dispersal

7.01 Propagules are likely to be dispersed unintentionally?
7.02 Propagules dispersed intentionally by people?
7.03 Propagules likely to disperse as a Produce contaminant?

Pheloung et al. (1999)

Dispersal (continued)
7.04 Adapted to wind dispersal?
7.05 Adapted to water dispersal?
7.06 Adapted to bird dispersal
7.07 Adapted to dispersal by animals
7.08 Propagules survive through gut passage

Persistence
8.01 Prolific (>2,000 propagules/m2)?
8.02 Persistent propagule bank formation
8.03 Well controlled by herbicides
8.04 Tolerates, or benefits from disturbance
8.05 Effective natural enemies present

(> 6, reject introduction; < 1, accept introduction; 1–6, evaluate further) – Review by TIPPC

Current Status

- Approved List of 200 species
- List of 107 Native and Naturalized species (exempt)
- List of 6 Primarily Terrestrial Species (exempt)
- List of 38 invalid names
- List of 19 Species for which we lack sufficient information
- List of 58 species that have been reviewed and rejected
- Sixty-nine species still pending
- List of ineligible Species

Vascular Plant Issues

- ***Colocasia esculenta***
- ***Nelumbo nucifera***
- ***Nymphaea* spp.**
- ***Oryza sativa***
- **Economic Importance**

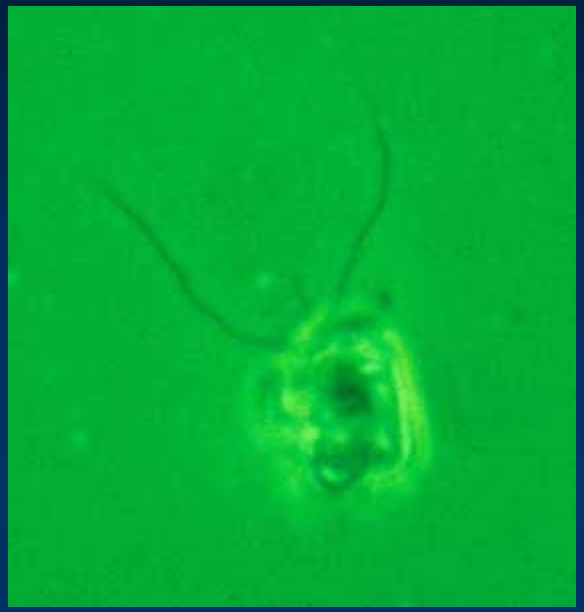
Microalgae

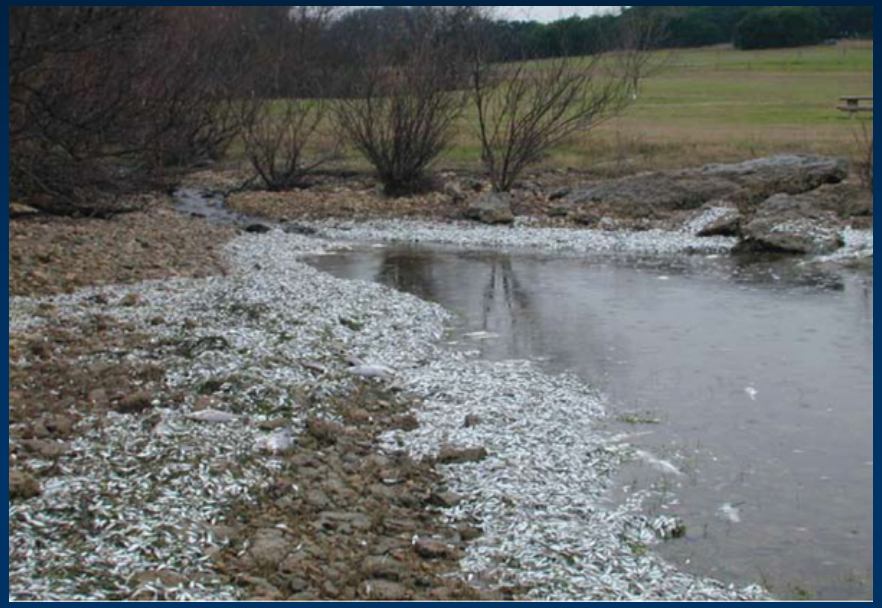
- Escalating interest for use in biofuels
- Requires separate treatment
  - Thousands of species/strains
  - Many poorly described

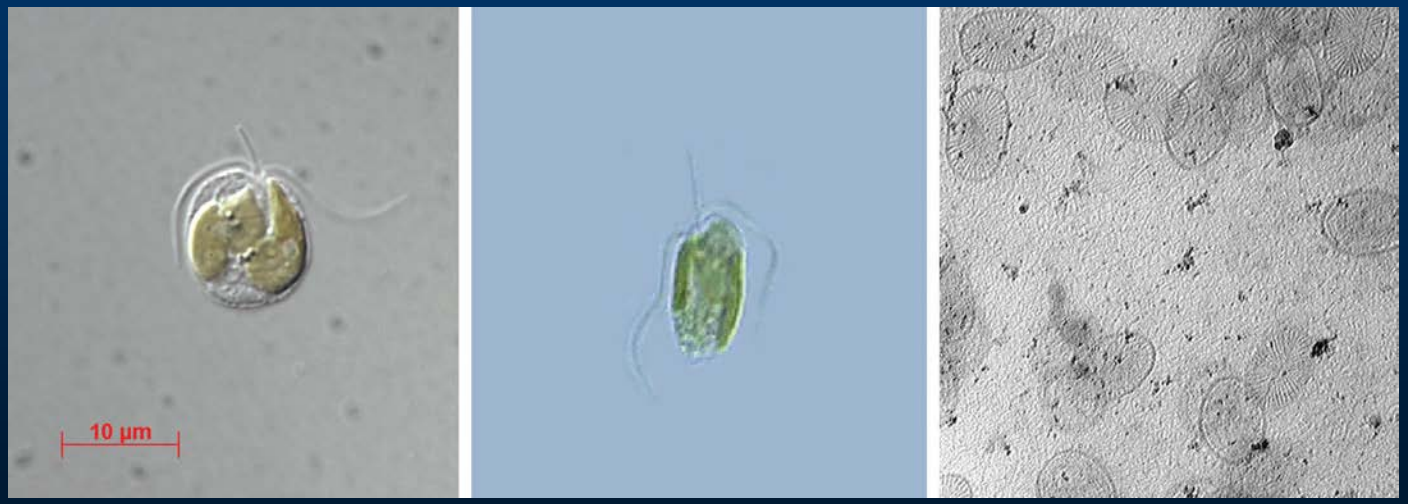
Why include algae?

Didymosphenia geminata

Prymnesium parvum







Special Concerns

- Toxicity
  - Humans
  - Animals
  - Other plants
- Propensity to bloom
- Competition with native species

Microalgae Permits

No permit needed for possession and use for species:

- **Known to be native**
- **Naturalized (typically found in Texas waters)**
- **Known to be a low risk to Texas waters**
- **Maintained by educational institutions, museums, etc. for education or small-scale, non-commercial research**

When will a Permit be Required?

- When identification is not provided below the genus level (organism will be assumed to be exotic).
- If the species is toxic or has the propensity for dangerous blooms.
- Genetically modified organisms will be considered exotic species.

Microalgae Permits

Permits may be issued for:

- Research
- Aquaculture
- Vegetation management
- Wastewater treatment
- Industrial/Commercial purposes

Transition Period

- Three-month period after implementation
- Allows possession of exotic species pending permit issuance
- There are provisions for disposal of illegal species

TPWD Activities

- Continue development of draft list and risk analyses
- Continue to solicit input from individuals and industry
- Begin review of exotic species permit applications when new rules are adopted
- Modify draft regulations as necessary

TPWD Activities

January 26rd & 27th Commission meetings

- **Discuss public input**
- **Vote on proposed rules**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