

Aquatic Invasive Plants in the Mississippi River

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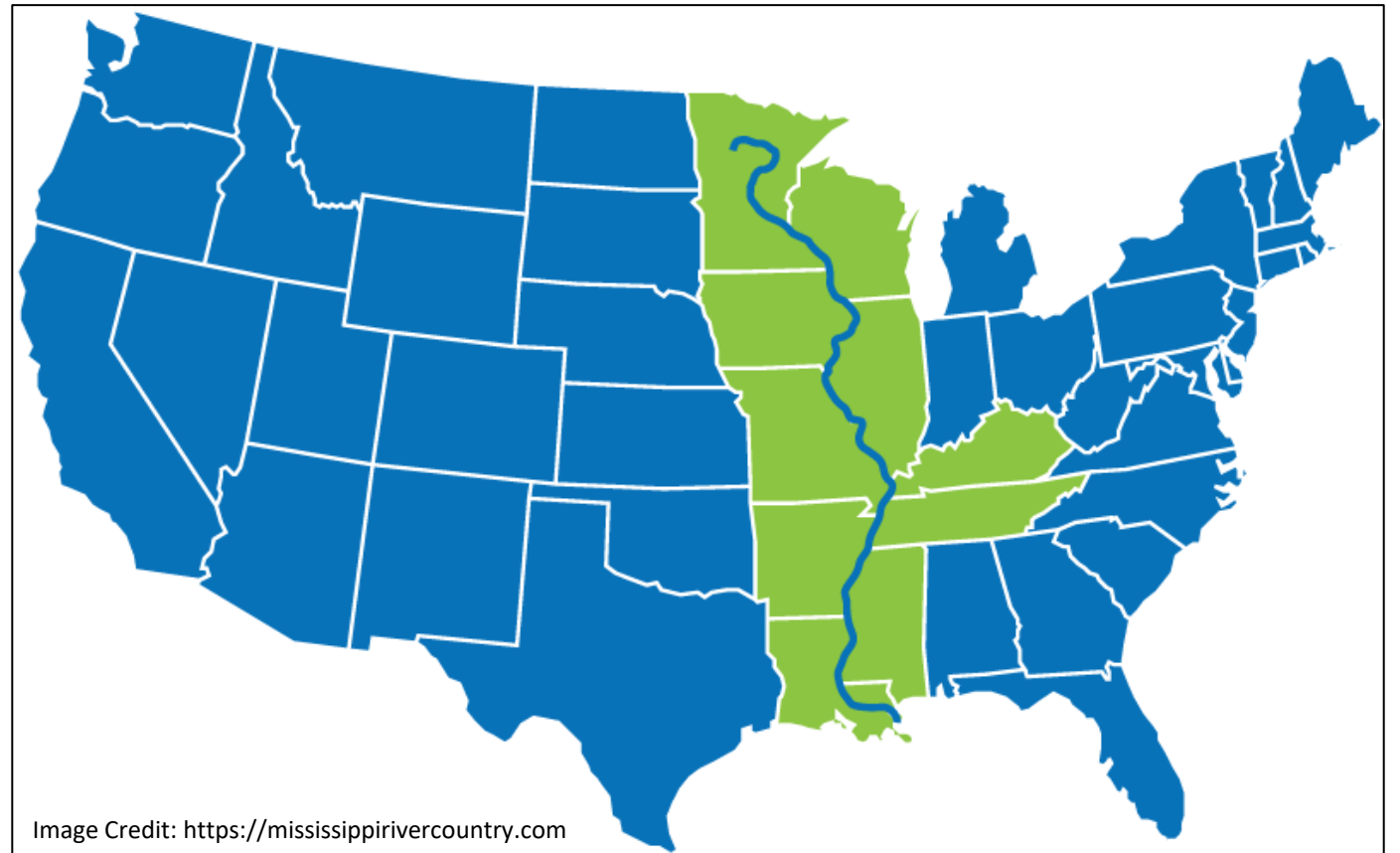
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Mainstem of MS River

- Mainstem of MS River traverses 10 states
 - MN, WI, IA, IL, MO, KY, TN, AR, MS, LA
- 28 invasive plants (minimum)
- More in tributaries
- Managing aquatic plants = managing water



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Plant Impacts – Biology and Ecology

- Disrupt nutrient cycling
- Lower plant and animal biodiversity
- Impact ecological processes
- Lower dissolved oxygen in water
- Decrease spawning habitat for fish



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Plant Impacts – Human Uses

- Approx. \$955M to manage aquatic weeds each year (CAST 2014)
- Costly impacts to industrial sites
 - \$4M to shutdown hydroelectric facility in 1990's
- Lost recreational and real estate income
 - \$16B/year spent for recreation
 - 13-40% decrease in property values
- Management improves value of surrounding landscape
 - FL study found 148:1 benefit-cost ratio



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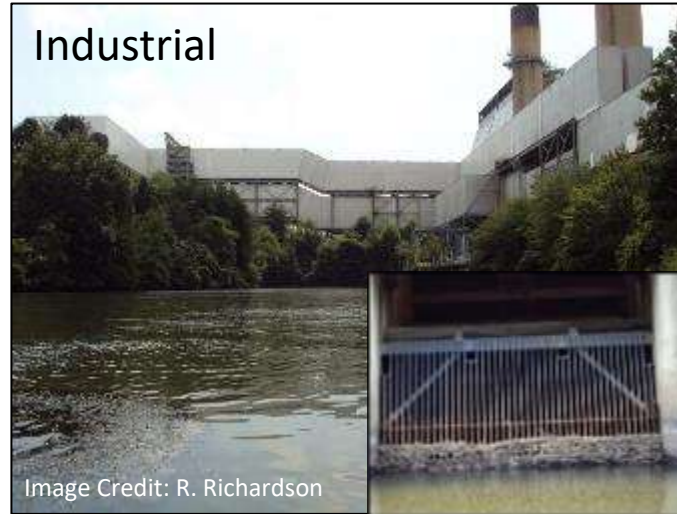


Plant Impacts – Human Uses

Navigation



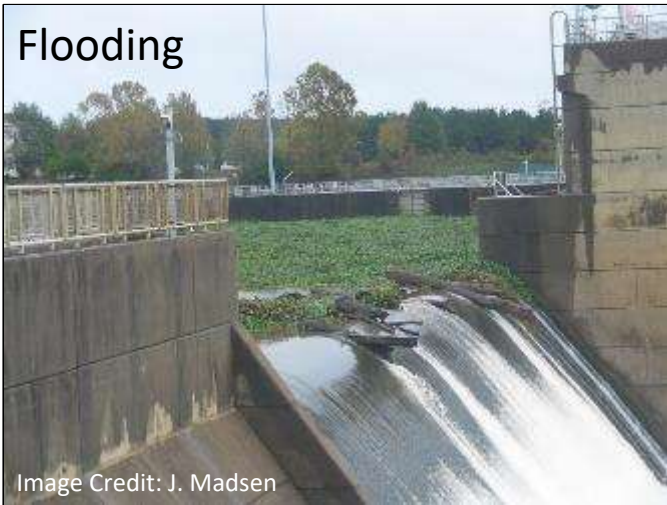
Industrial



Irrigation



Flooding



Recreation



Drinking Water



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Giant Salvinia (*Salvinia molesta*)

- Multiple introductions to US
- Floating species that can form mats up to 1 m thick
- In Southern states spreading north
- 300% increase in MS in 5 yrs
- Expensive to eradicate
 - 20 ac eradication = \$750K; 4 yrs



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Flowering Rush (*Butomus umbellatus*)

- Introduced to Great Lakes region from Eurasia
- Rapid rate of spread within waterbodies can overwhelm resource agencies
- Coordination of research, resource management goals, funding, and regulatory used to develop successful control program
 - 320 ac to 15 ac



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Roadblocks to Better Management Practices

- Need more research on biology and control of aquatic weeds
- Not Enough Knowledge/Research, therefore aquatics has limited:
 - Human Resources
 - Management Tools
 - PR/Messaging to Stakeholders
 - Management Funding
- Difficult to untangle issues above as each affects the rest



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Knowledge/Research

- AIS present in every US state but less than ½ dozen research entities active in US
- Researchers responsible for:
 - Generating new knowledge (Research)
 - Disseminating knowledge (Extension)
 - Training resource managers (Teaching)
 - Engaging stakeholders (PR)
 - Consulting expertise (Management)
- Research Funding is a major issue



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Management Tools

- Control strategies very limited
- Need better communication among state and federal agencies
- Only 17 chemistries for general aquatic use
 - ~300 for terrestrial
- Researchers develop new strategies for resource managers



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Solutions to Better Management Practices

- More Knowledge/Research regarding biology and control of aquatic plants will yield better:
 - Human Resources
 - Management Tools
 - PR/Messaging to Stakeholders
 - Management Funding
- All are integrated/linked
- Enhance all simultaneously



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Summary

- Dozens of AIS in MS River
 - More likely on the way
 - Those present likely to expand
 - Species in tributaries likely to move to main stem
- Aquatics field will need investment on multiple fronts to meet future needs
- Solutions will require inputs to all aspects of field



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Questions

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