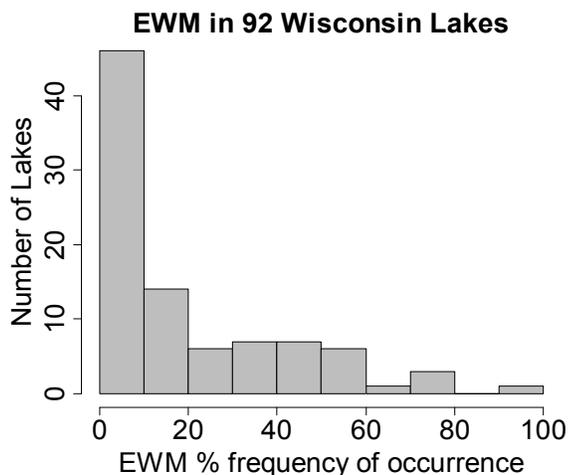


# EWM RESEARCH FACTS

The non-native species Eurasian watermilfoil (EWM) has been documented in 540 Wisconsin waterbodies. We know where it occurs, but what are EWM populations in Wisconsin typically like? Research scientists have surveyed 92 EWM lakes in order to answer that question. What they learned surprised them, and challenges some commonly-held EWM myths.

## EWM populations are often small in scale.



This figure shows the number of lakes observed with different amounts of EWM (measured by frequency of occurrence in the littoral zone). In most lakes, EWM occurred at less than 10% of the sites observed.

Higher EWM levels tend to occur in:

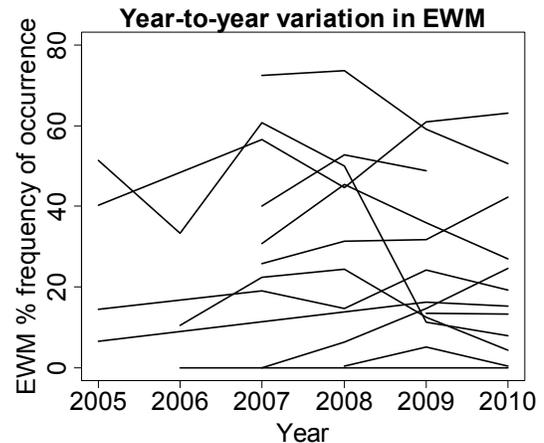
- Southern lakes
- Reservoirs instead of natural lakes
- Lakes with lower water clarity
- Lakes with shallow maximum rooting depth
- Drainage lakes

## EWM isn't always associated with lower species richness.

EWM has been shown to displace native species, but in some cases, it may simply be taking advantage of altered environmental conditions. Additionally, several long-standing EWM populations have been observed at non-competitive levels.

**EWM distribution and abundance resembles that of several other native species (like coontail, elodea and sago).**

## EWM populations vary over time.



This figure shows EWM % frequency of occurrence over time in the littoral zone of 13 unmanaged lakes.

Varying trajectories have been observed:

- Decrease over time
- Increase over time
- Constant low level
- Substantial year-to-year variation

## Early response can help keep populations low even in systems where EWM might be expected to do well.

To better understand the use of strategic management to control EWM, we are tracking population trends and management actions on 24 lakes in Wisconsin. This study will help us assess costs and benefits of EWM management over the short- and long-term.

## Even though EWM can exist at low levels in certain lakes for many years, random disruptive events (like floods or sudden nutrient pulses) can cause EWM to increase.

## Eradication is often an unrealistic management goal.

Reasonable management goals should be set after careful consideration of available science as well as the costs and benefits of available treatment options.

# LONG-TERM EWM STUDY

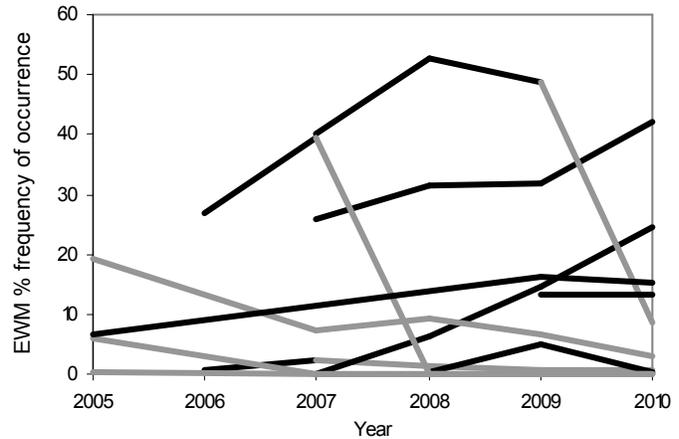
Despite the increase in resources to control EWM, we lack the basic information necessary to set reasonable management expectations. Although EWM control efforts are often designed to “restore” an ecosystem, we have yet to demonstrate how this may be accomplished and we have yet to evaluate the economic and ecological costs. Thus, we are monitoring EWM and native plant populations in 24 Wisconsin lakes in three ecoregions in order to assess the impact of best management practices over the short- and long-term.

Here’s what our data look like so far:

■ Managed    ■ Unmanaged

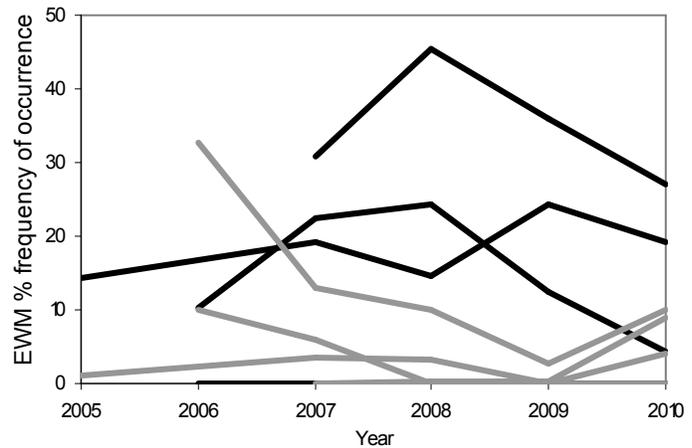
## Northern Lakes New EWM Populations

- Variation in unmanaged systems
- Marked decrease in managed systems
- Does management affect natives?



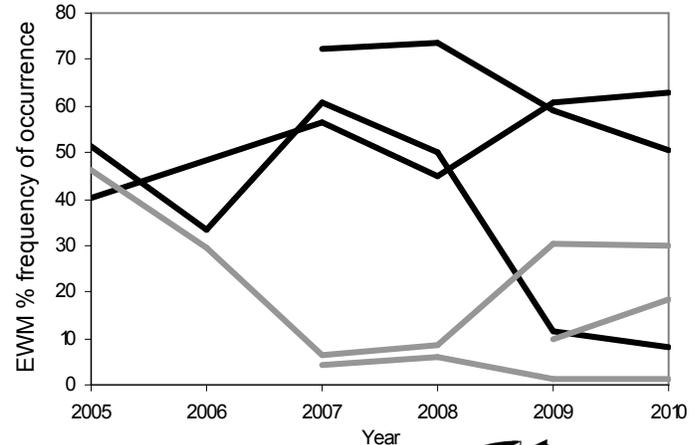
## Central Lakes New EWM Populations

- Variation in unmanaged systems
- Marked decrease in managed systems
- What caused the natural declines?
- Does management affect natives?



## Southern Lakes Established EWM Populations

- High variability in unmanaged systems
- What caused the natural decline?
- Does management affect natives?



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