

ZEBRA MUSSELS

Stephen Davis
Water Quality Protection



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WE'LL DISCUSS:

- Zebra mussel biology
- Status of Colorado Basin
- Why do we care?
- Management techniques
- Resources



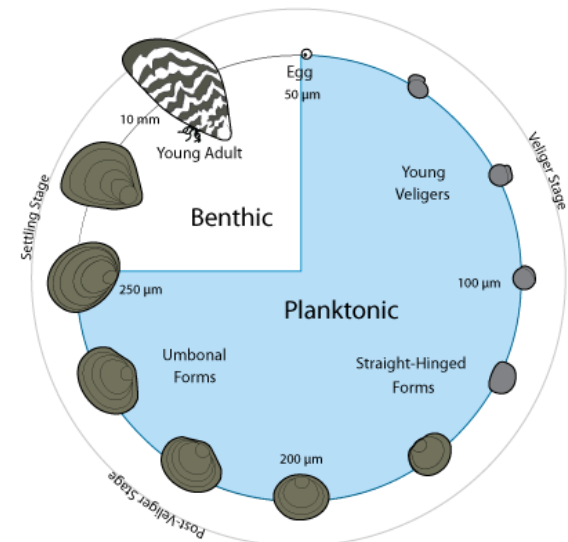
ZEBRA MUSSEL BIOLOGY

- Zebra mussels are native to Eurasia
- 1988 – discovered in Lake St. Clair (Great Lakes region)
- How did they get to the United States?



ZEBRA MUSSEL BIOLOGY

- Females known to spawn up to 1 million eggs/year
- Larvae (veligers) are microscopic - free floating
- Juveniles settle, attach to hard surfaces (3-4 weeks)
- Become sexually mature in first year

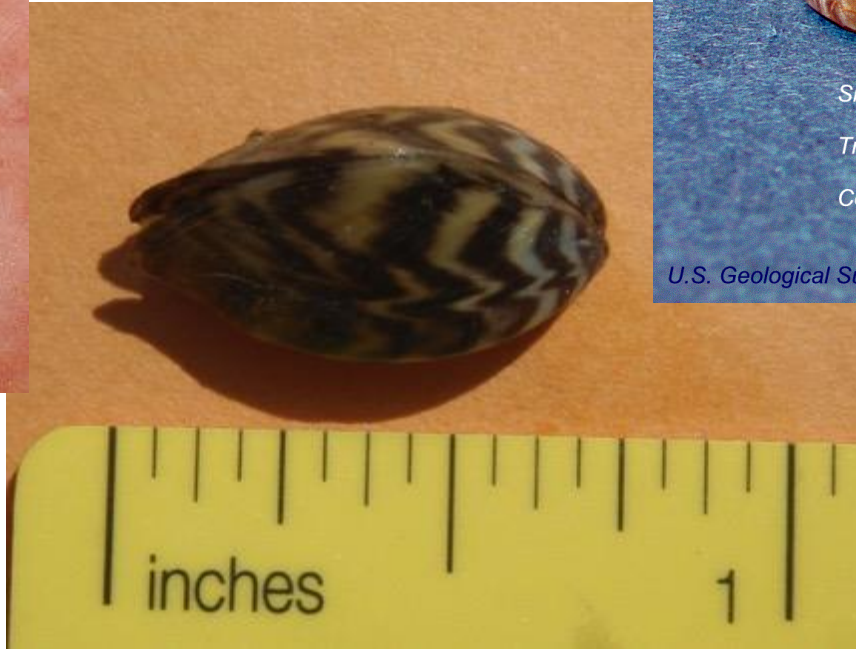


ZEBRA MUSSEL BIOLOGY

- Max shell size: ~1.5 inches
- Life span: 1-3 years
(3-9 documented up north)
- Survive out of the water for ~7 days (77°F)
- Spawn in water temps 64° F to 82-86° F
 - Mid-April to late July
 - Mid-September to mid-December



ZEBRA MUSSEL IDENTIFICATION



Dreissena polymorpha



Sits flat on ventral side

Triangular in shape

Color patterns vary

U.S. Geological Survey

ZEBRA MUSSEL IDENTIFICATION



ZEBRA MUSSEL IDENTIFICATION

Zebra mussel



Asian clam



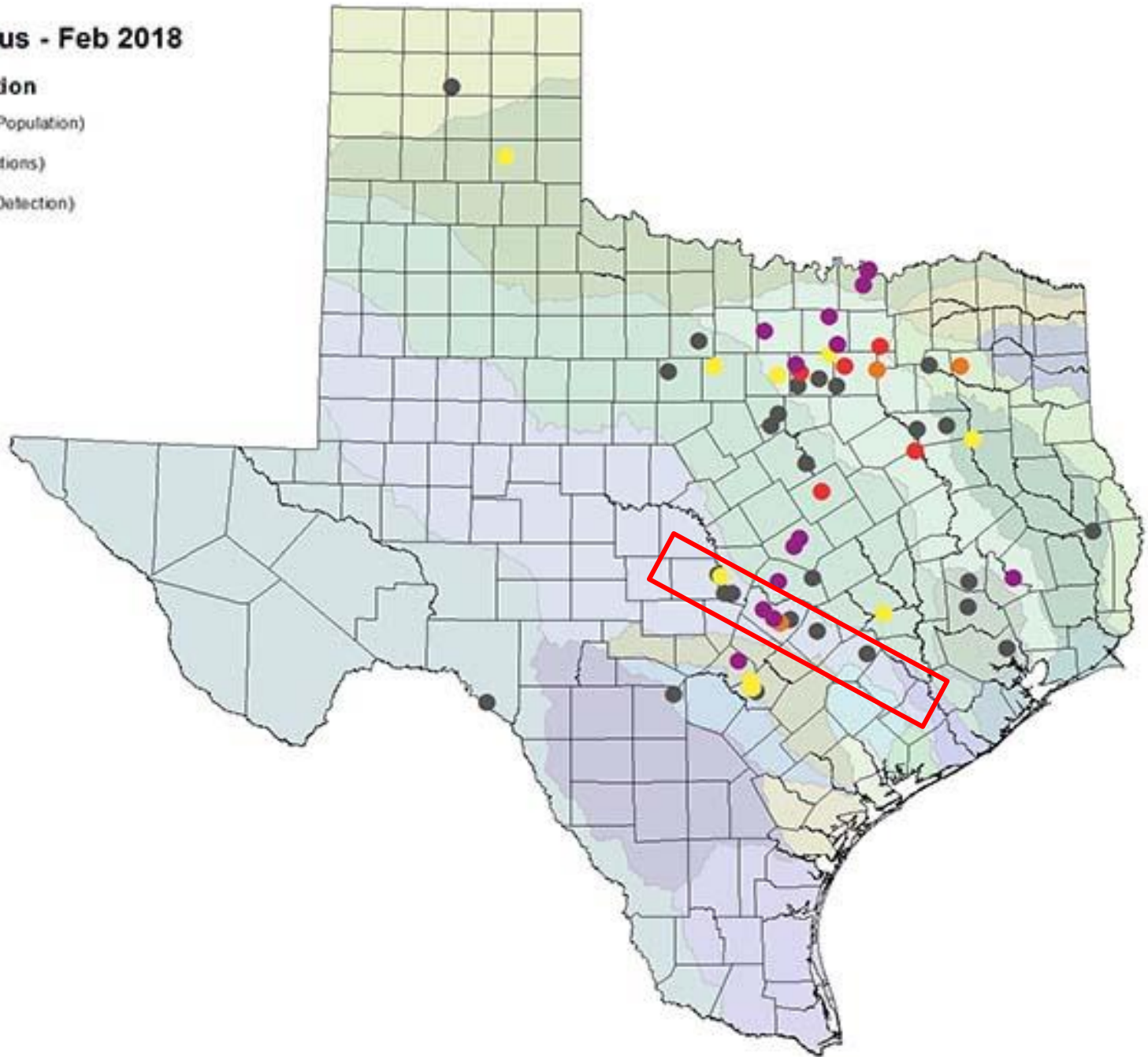
Invasion status of LCRA waters

Waterbody	Status	Notes
Buchanan	Negative	Previously "Inconclusive". Zebra mussel DNA detected in sample from several years ago. No samples have tested positive for ZM DNA since. No physical specimens have been found either.
Inks	Inconclusive	Zebra mussel DNA detected in sample taken in October 2017. No ZM larvae were found in plankton samples taken in October and December 2017. No juveniles or adults were found during a survey of the entire shoreline during the January 2018 drawdown.
LBJ	Negative	No evidence of zebra mussels have been found to date.
Marble Falls	Negative	No evidence of zebra mussels have been found to date.
Travis	Infested	Active reproducing population present.
Austin	Infested	Active reproducing population present.
Lady Bird	Suspect	Several ZM larvae were found in a plankton sample taken near Longhorn Dam in December 2017.
Lower Colorado	Negative	No evidence of zebra mussels have been found below Longhorn Dam to date.
Bastrop	Negative	No evidence of zebra mussels have been found to date.
Fayette	Negative	No evidence of zebra mussels have been found to date.

Zebra Mussel Status - Feb 2018

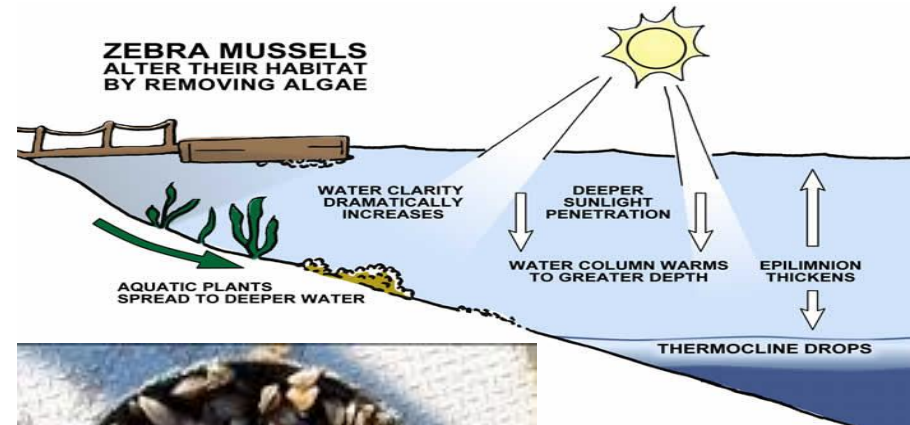
Water Body Classification

- Infested (Reproducing Population)
- Positive (Multiple Detections)
- Suspect (One Verified Detection)
- Inconclusive
- Undetected/Negative



WHY DO WE CARE?

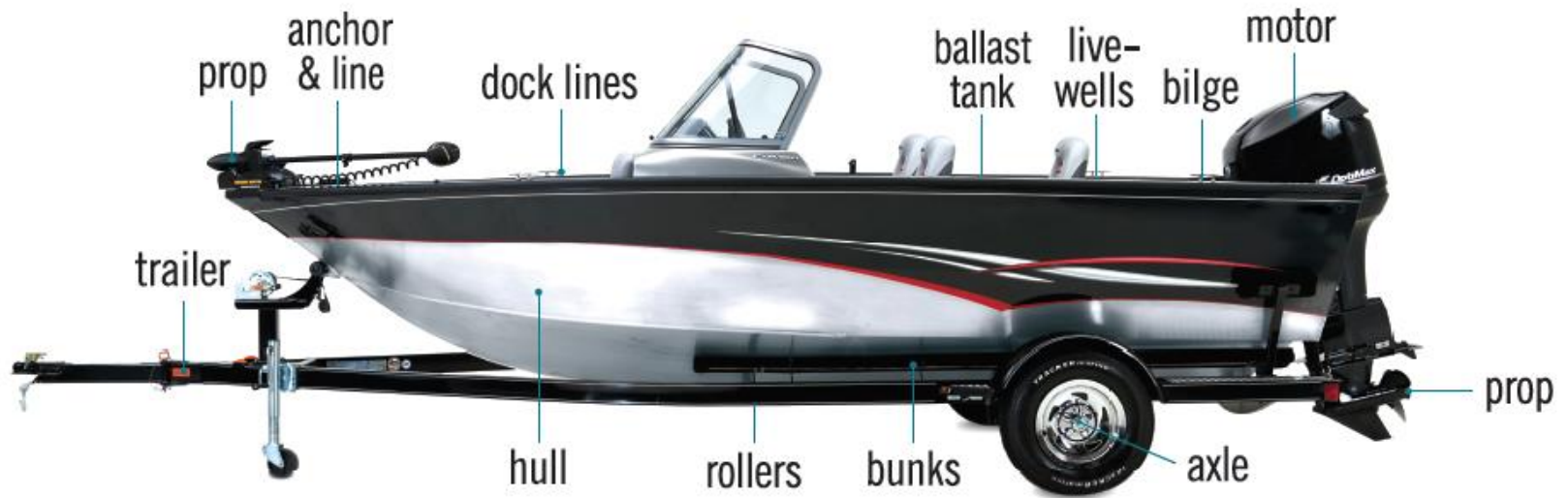
- **Recreational impacts**
- **Ecological impacts**
- **Economic impacts**



HOW DO YOU GET RID OF THEM???

Management, **not** eradication

HOW CAN WE PREVENT THE SPREAD?



ZEBRA MUSSELS HIDE HERE.

CLEAN, DRAIN AND DRY YOUR BOAT.

TEXAS
PARKS &
WILDLIFE

HOW CAN WE PREVENT THE SPREAD?

DON'T BE A CARRIER. TAKE ACTION AND STOP THE SPREAD!

CLEAN your boat, trailer and gear by removing plants and mud and checking all crevices for foreign objects.

DRAIN all water from the boat, including the motor, bilge, livewells and bait buckets. Zebra mussels' microscopic larvae can hide in the water in your boat.

DRY the boat and trailer for a week or more. If unable to dry it completely, wash it with hot, high-pressure, soapy water.

IT'S THE LAW. Possession or transportation of zebra mussels is illegal. Boaters are also REQUIRED to drain all water from their vessel, including live wells, bilges, motors, and any other receptacles or water intake systems before leaving or approaching any public body of fresh water in Texas. This applies to ALL types and sizes of boats.

Violations are Class C misdemeanors for the first offense, punishable with a fine of up to \$500.

TEXAS
PARKS &
WILDLIFE

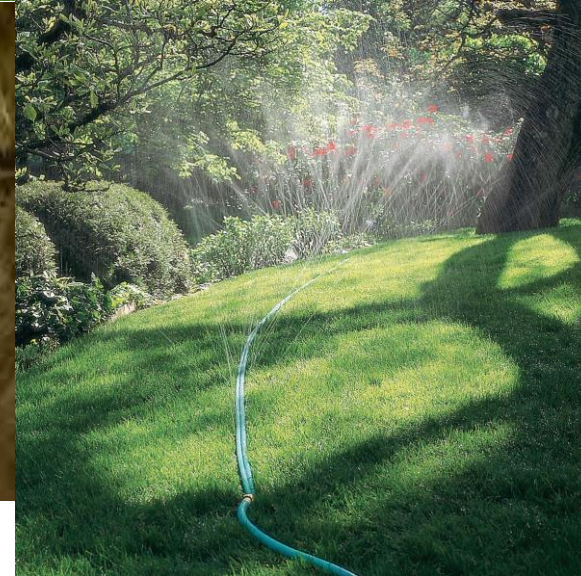
MANAGEMENT TECHNIQUES - INFRASTRUCTURE

- Manual removal
- Antifouling paints/alloys
- Chemical feed systems
- Desiccation
- Temp control
- Flow control



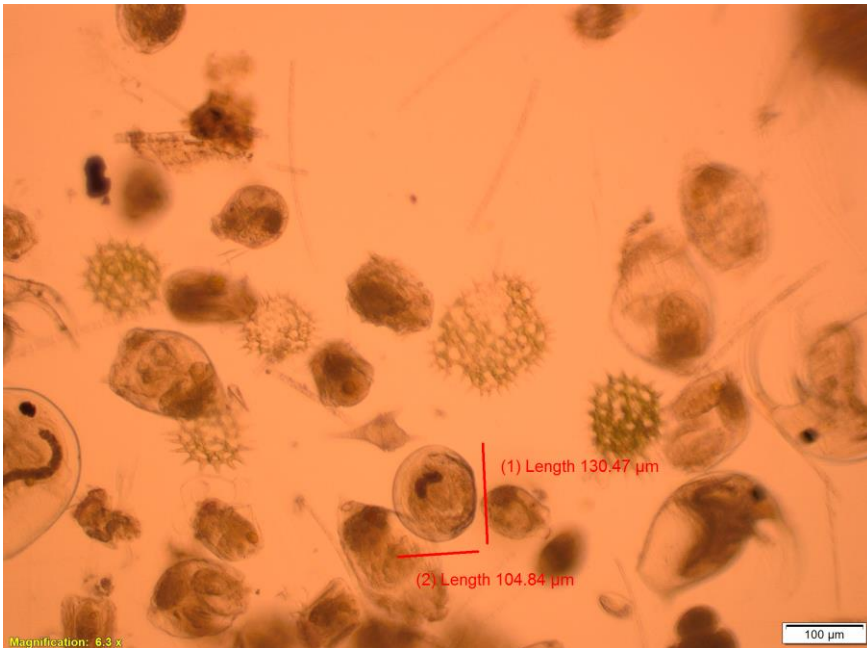
MANAGEMENT TECHNIQUES - IRRIGATION

- Manual removal
- Dewatering & desiccation
- Flushing



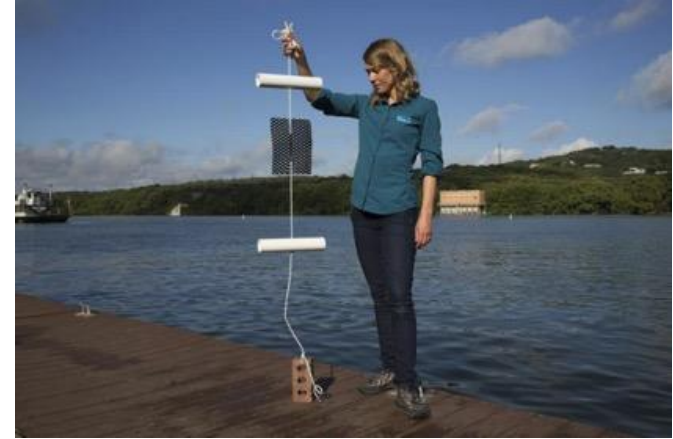
WHAT IS LCRA DOING?

- Shoreline surveys
- Plankton monitoring



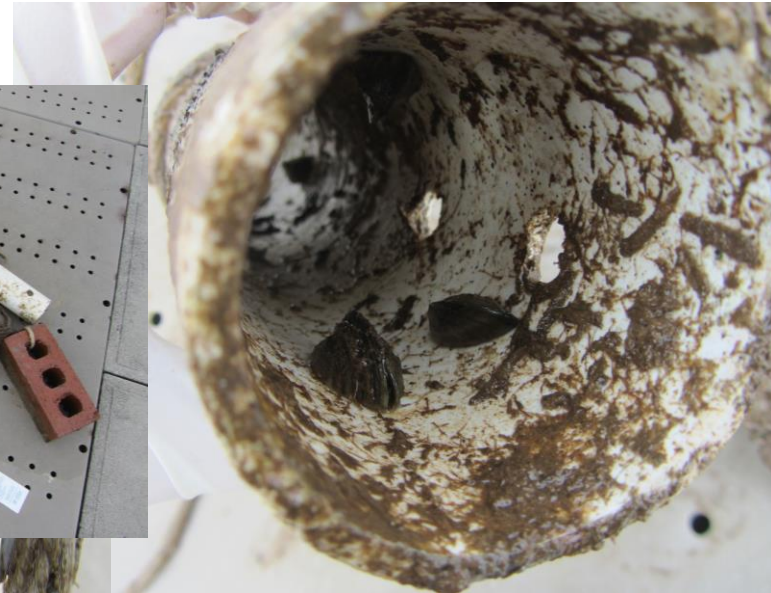
WHAT IS LCRA DOING?

- Volunteer settlement sampler monitoring
- Internal decon protocols for watercraft
- Inspecting infrastructure & reviewing management techniques



SETTLEMENT SAMPLER MONITORING

- Mansfield Dam Park
Dec. 28, 2017



RESOURCES

