
DELAWARE CENTER FOR THE
INLAND BAYS
Research. Educate. Restore.
Your Creek
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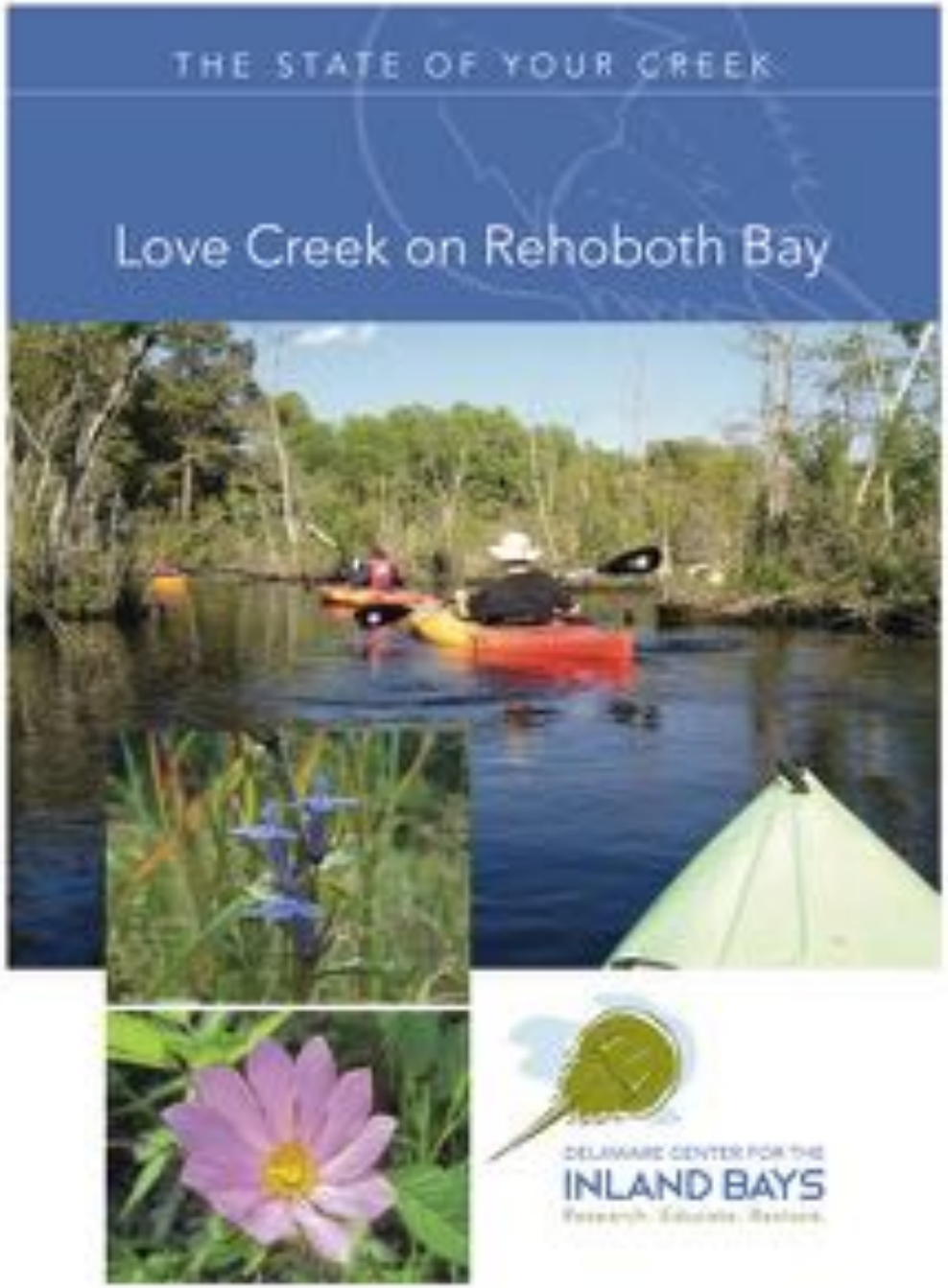
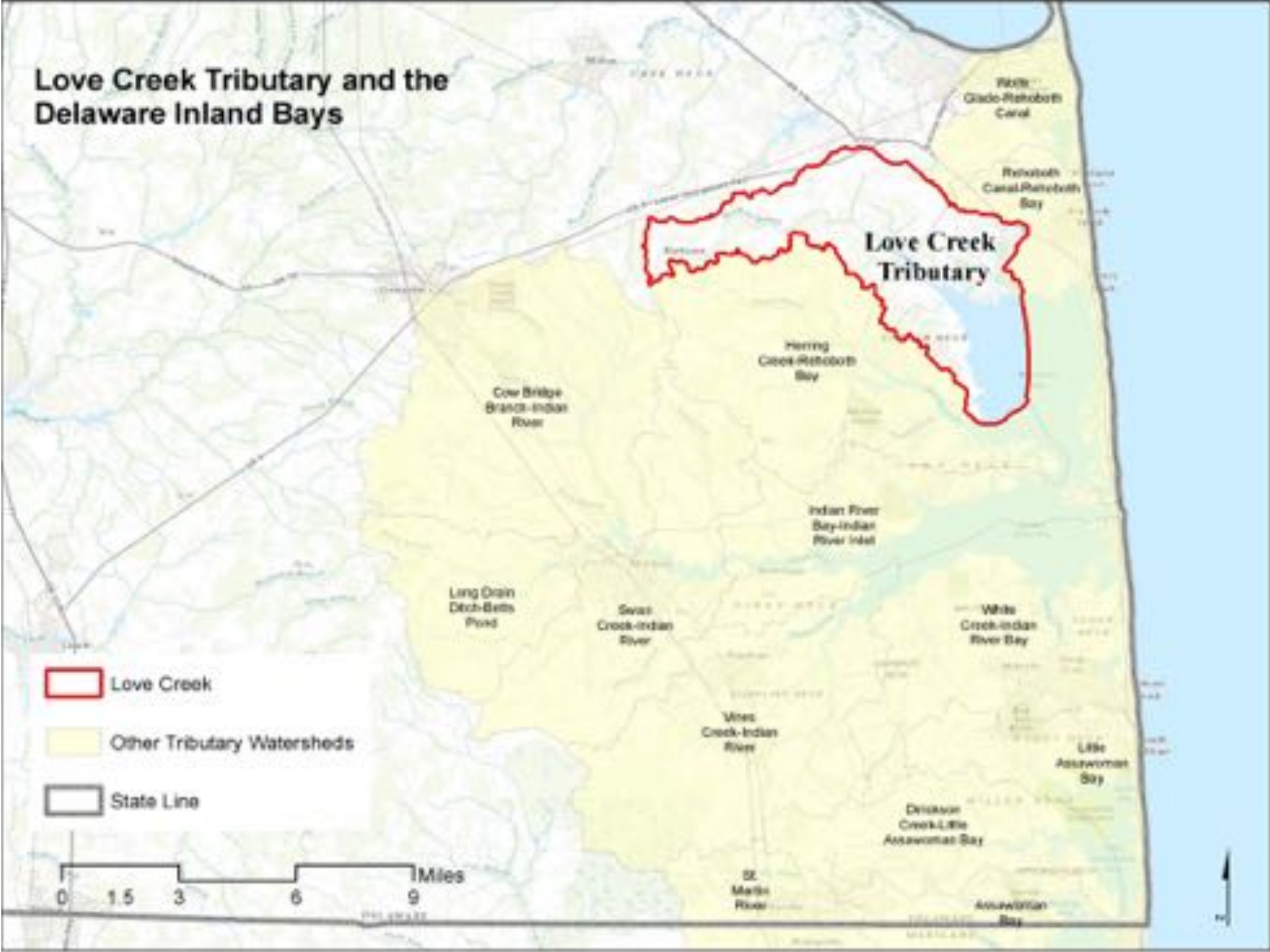
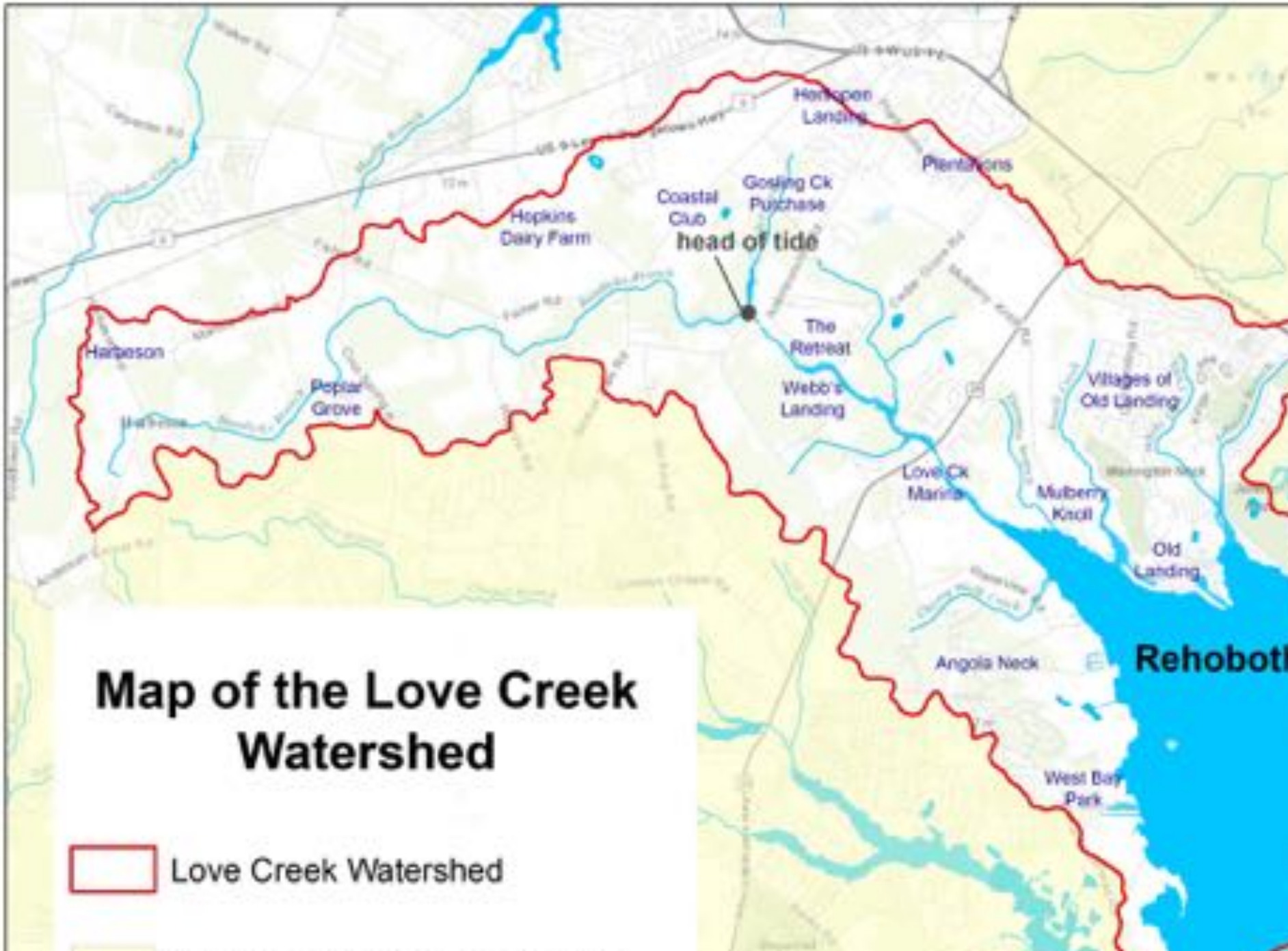

THE STATE OF YOUR CREEK
Love Creek on Rehoboth Bay
DELAWARE CENTER FOR THE
INLAND BAYS


Love Creek Tributary and the Delaware Inland Bays
Love Creek Tributary
Love Creek
Other Tributary Watersheds
State Line
0 1.5 3 6 9 Miles


Hopkins
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Angola Neck
West Bay
Park
Map of the Love Creek
Watershed
Love Creek Watershed

The Love Creek Report looks at these important environmental indicators*:

*specific species and conditions that are measured over time to determine how the Bays are changing and how much progress has been made toward restoration goals.

- Land use
- Septic systems
- Nutrient loads
- Nutrient concentrations
- Dissolved oxygen
- Fecal bacteria
- Bay grasses

LAND USE: The Love Creek watershed is changing

Increased population

↓

Drives residential and commercial development

↓

Bringing increased traffic

↓

And creating a need for need for additional infrastructure

These changes put Love Creek at risk for water quality degradation and declining overall watershed health.

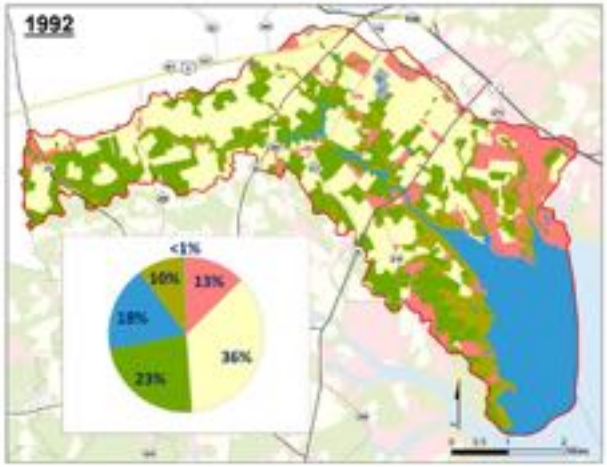
LAND USE: Development is increasing

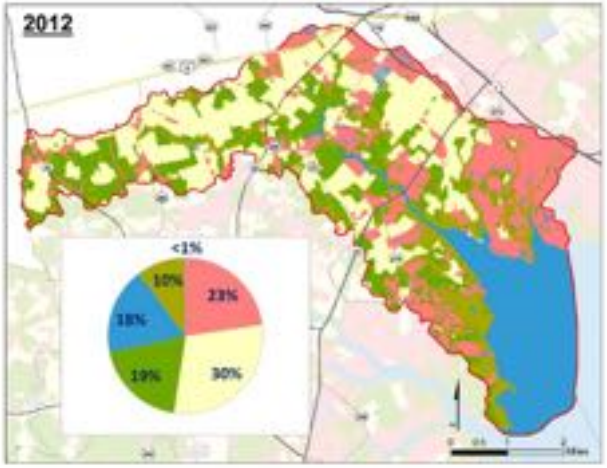
The 2008 recession slowed development for a time, but many projects that were put on hold are now underway…

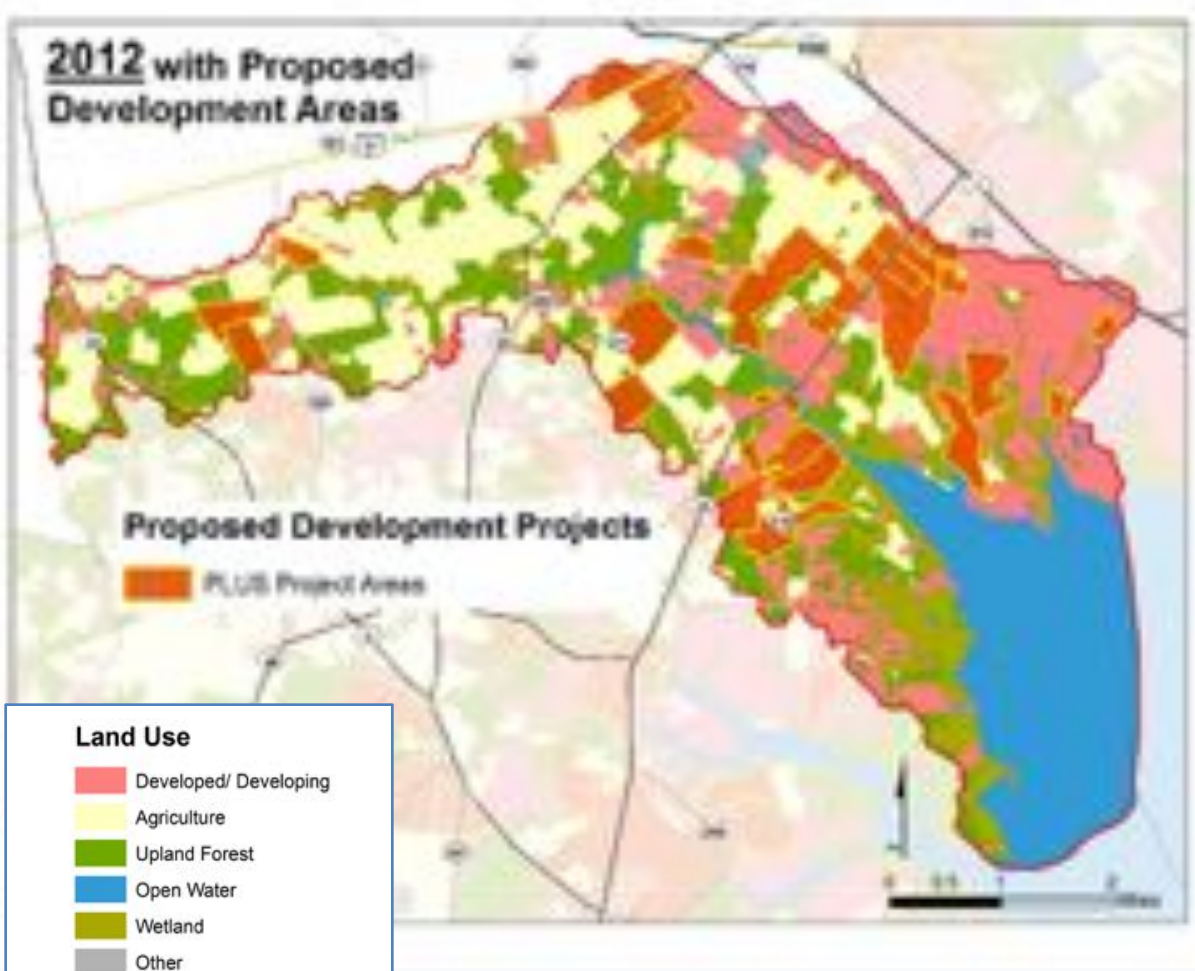
Loss of forests and marshes along the shorelines of the creek and its tributaries could have a significant impact on the health of the creek.

LAND USE: Development is increasing

Patterns of land use change around Love Creek

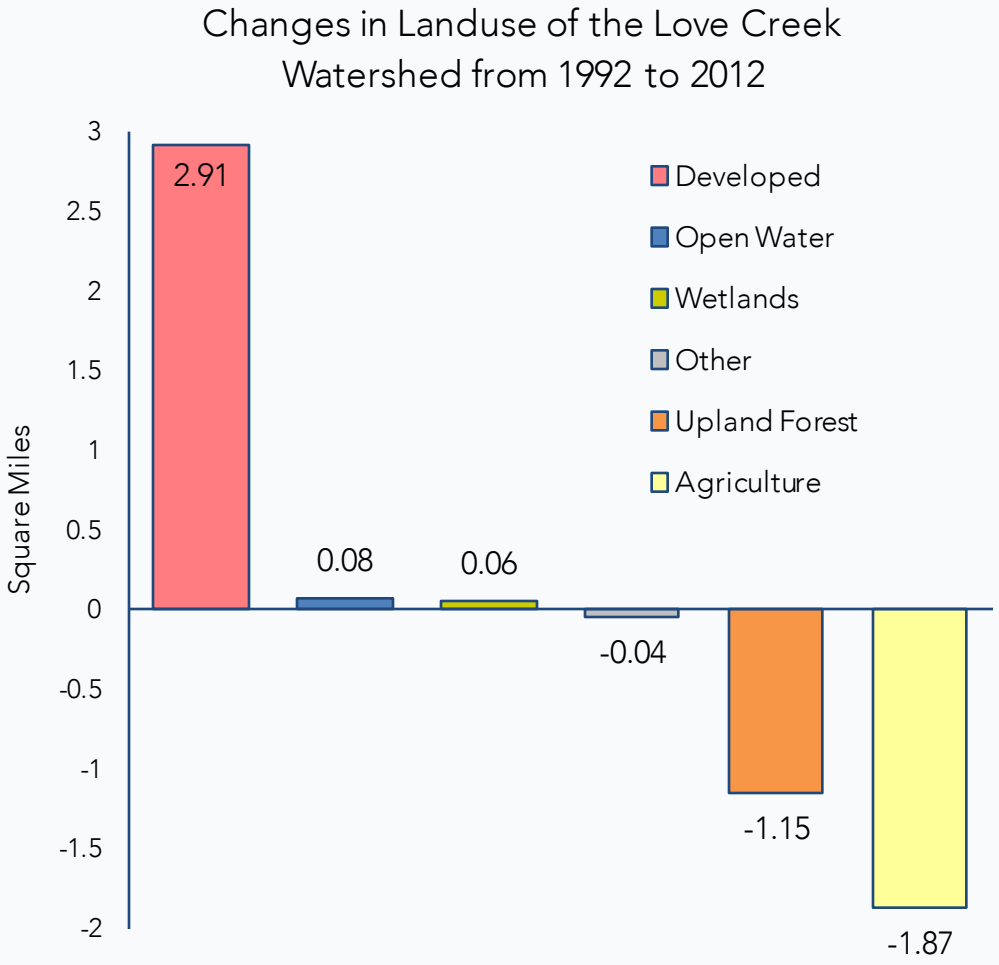






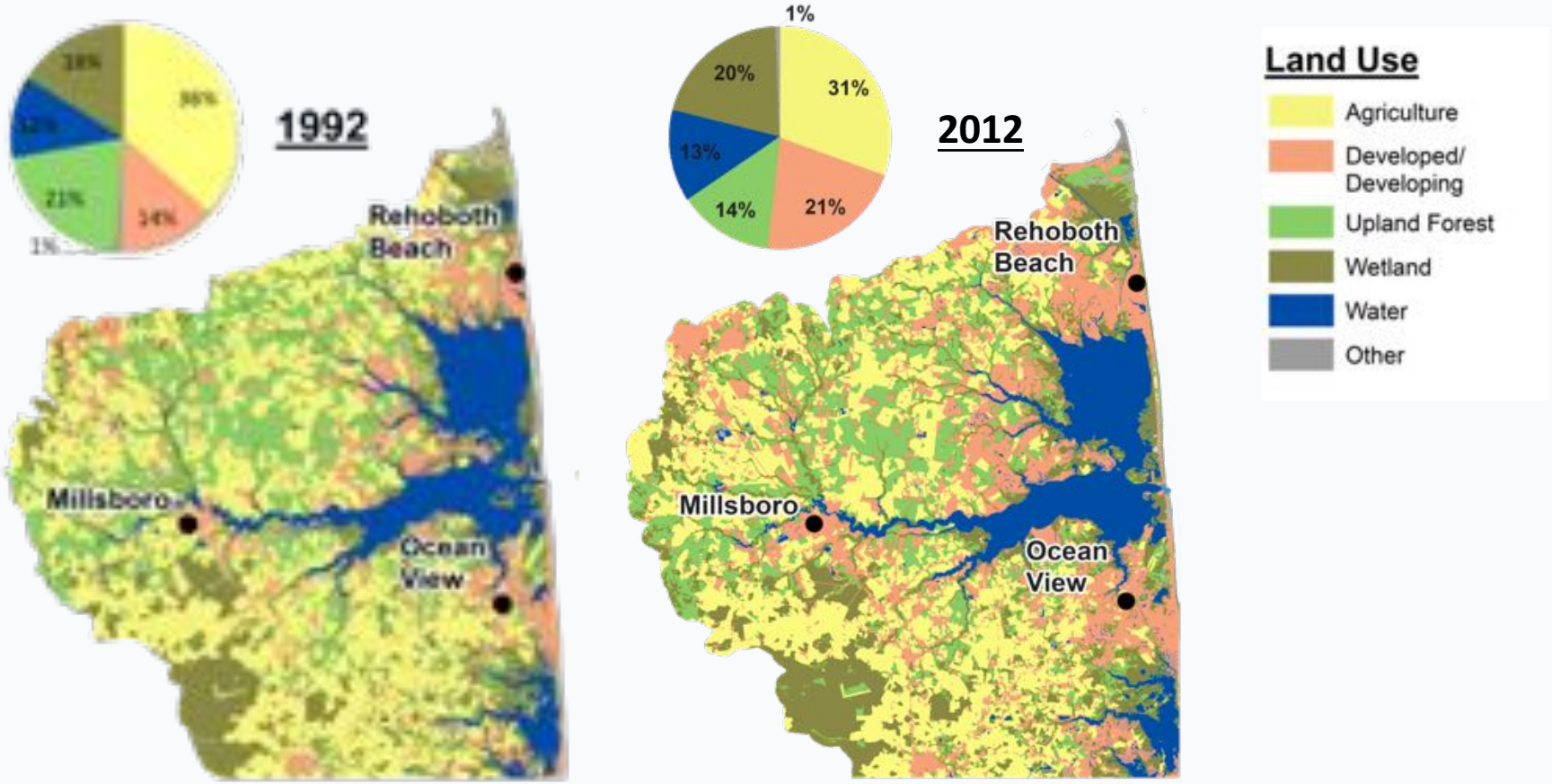
LAND USE: Changes in land use around Love Creek

Developed land increasing-upland forest and agricultural land decreasing

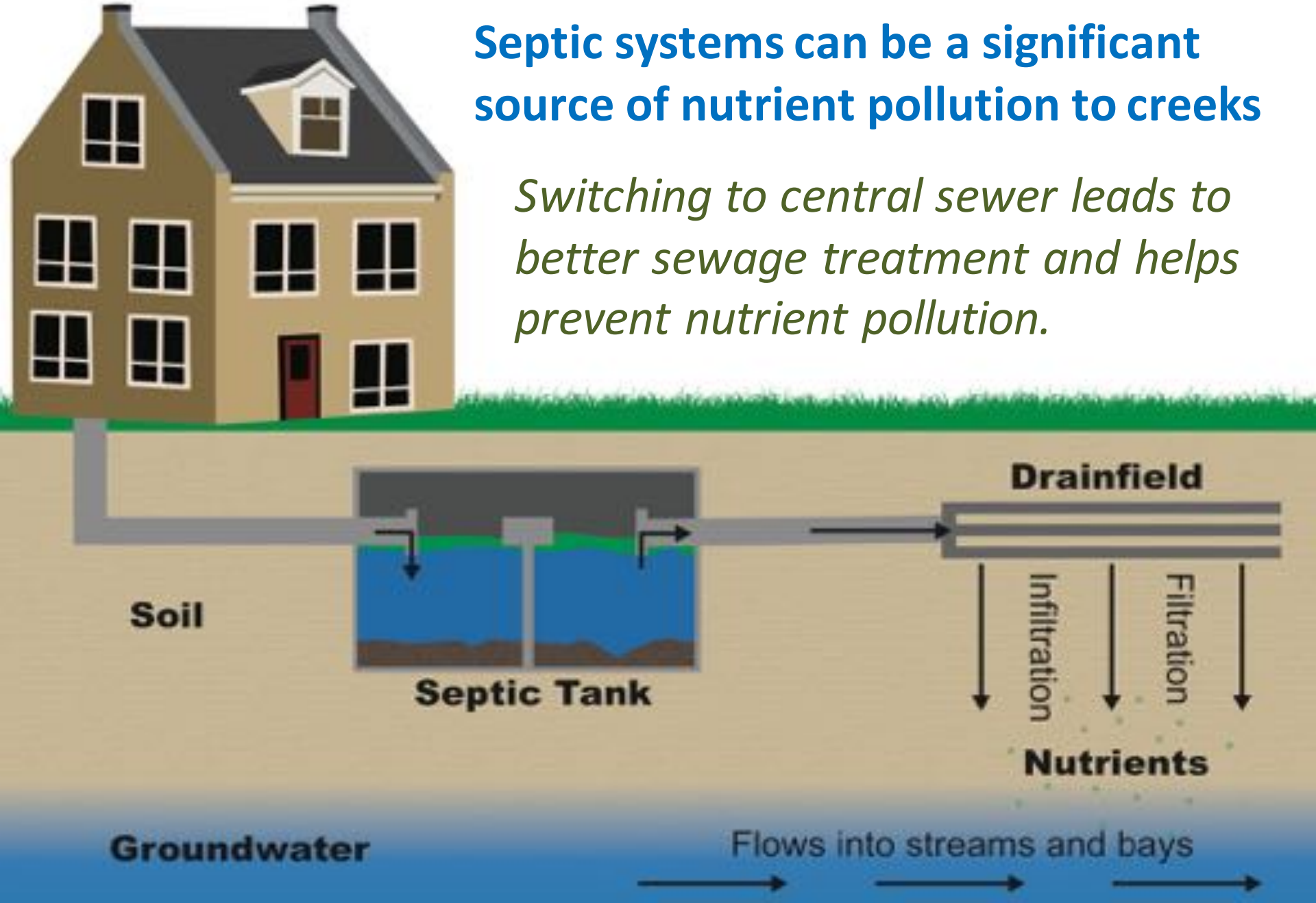


LAND USE:

Land use is changing around the Inland Bays…



SEPTIC SYSTEMS

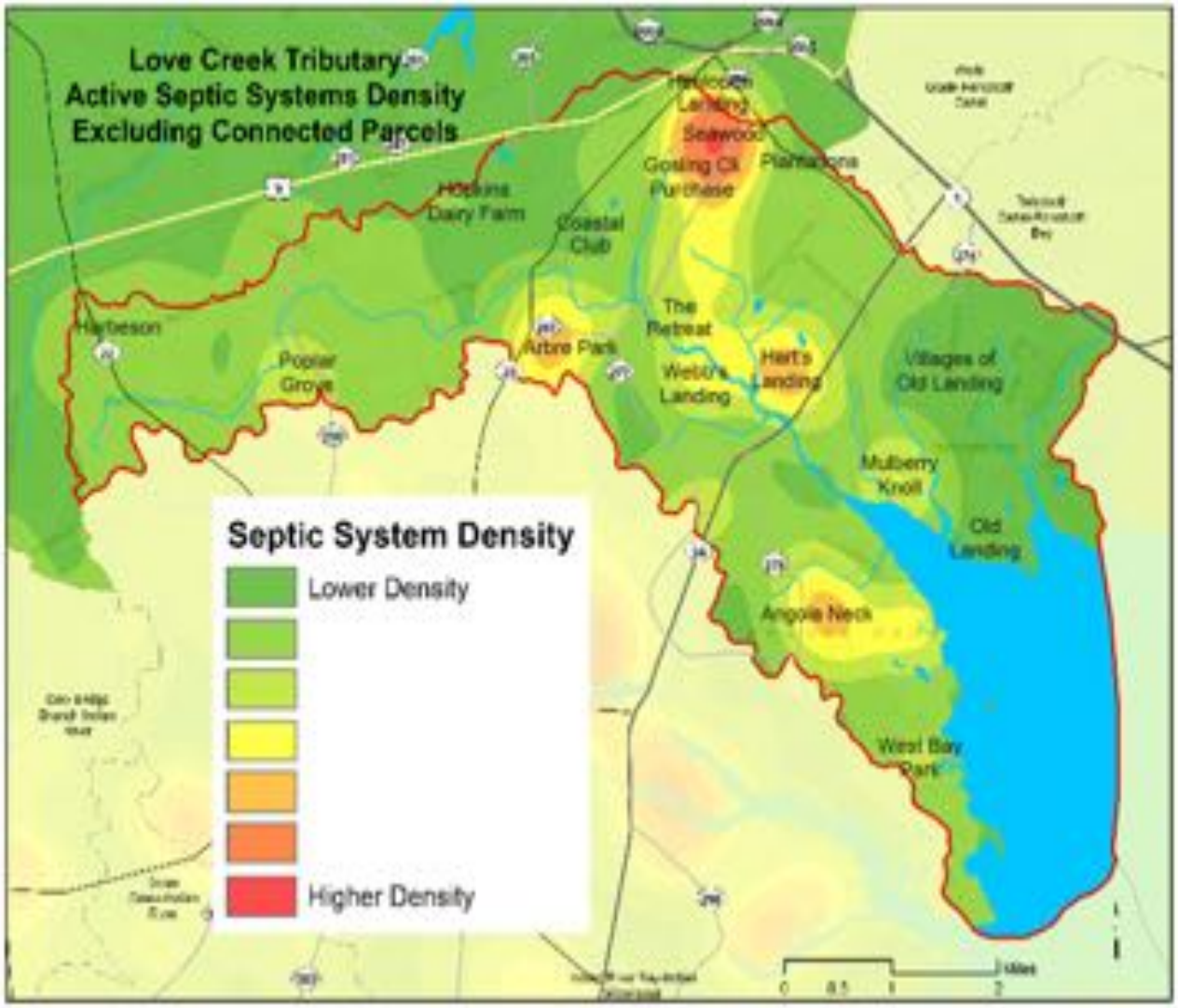


Septic systems can be a significant source of nutrient pollution to creeks

Switching to central sewer leads to better sewage treatment and helps prevent nutrient pollution.

SEPTIC SYSTEMS:

Love Creek watershed has a high number and density of septic systems compared to other creek watershed around the Inland Bays

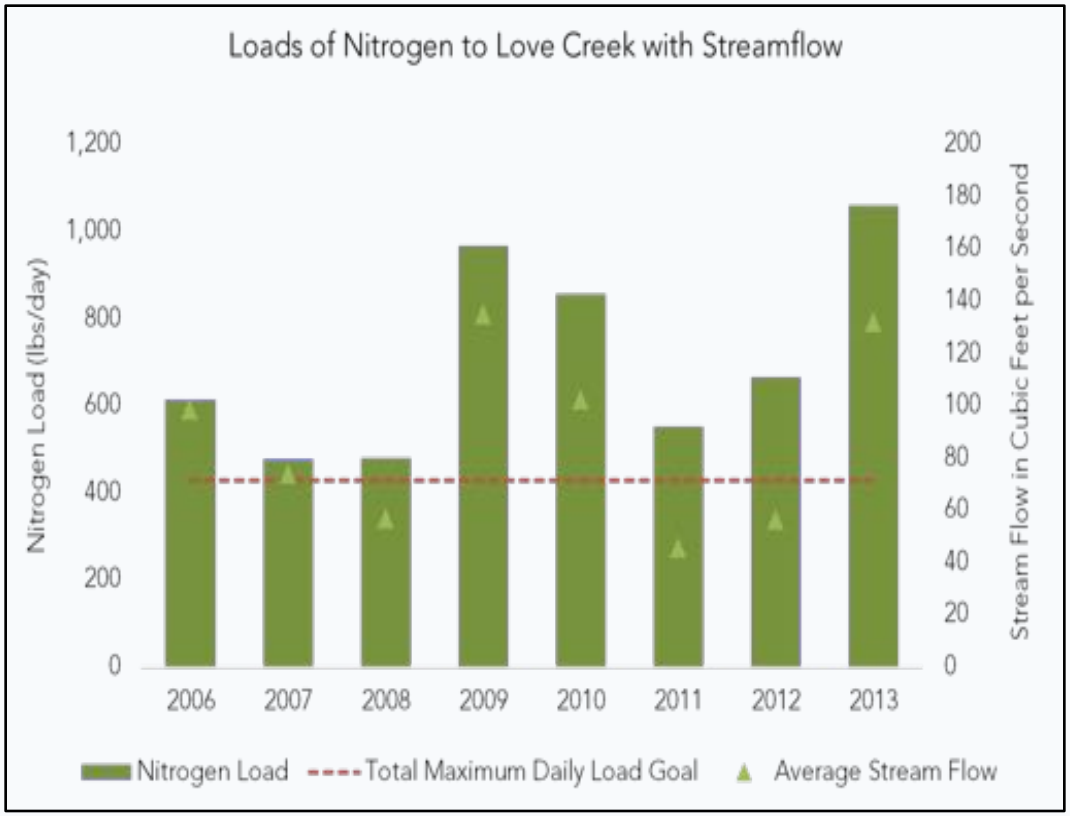


According to Sussex County, the Love Creek area is next in line to get public sewer. Funding has been secured and the design is almost complete.

NUTRIENT LOAD: Too Much Nitrogen & Phosphorus

Nutrients are important for the growth of beneficial grasses and algae in tidal creeks. **However,** too many nutrients can cause an excess of algae, low oxygen levels, and cloudy water. **Nitrogen is the major pollutant in Love Creek.**

Red dotted line marks the goal for Nitrogen reduction in Love Creek. *We are not meeting the goal.*



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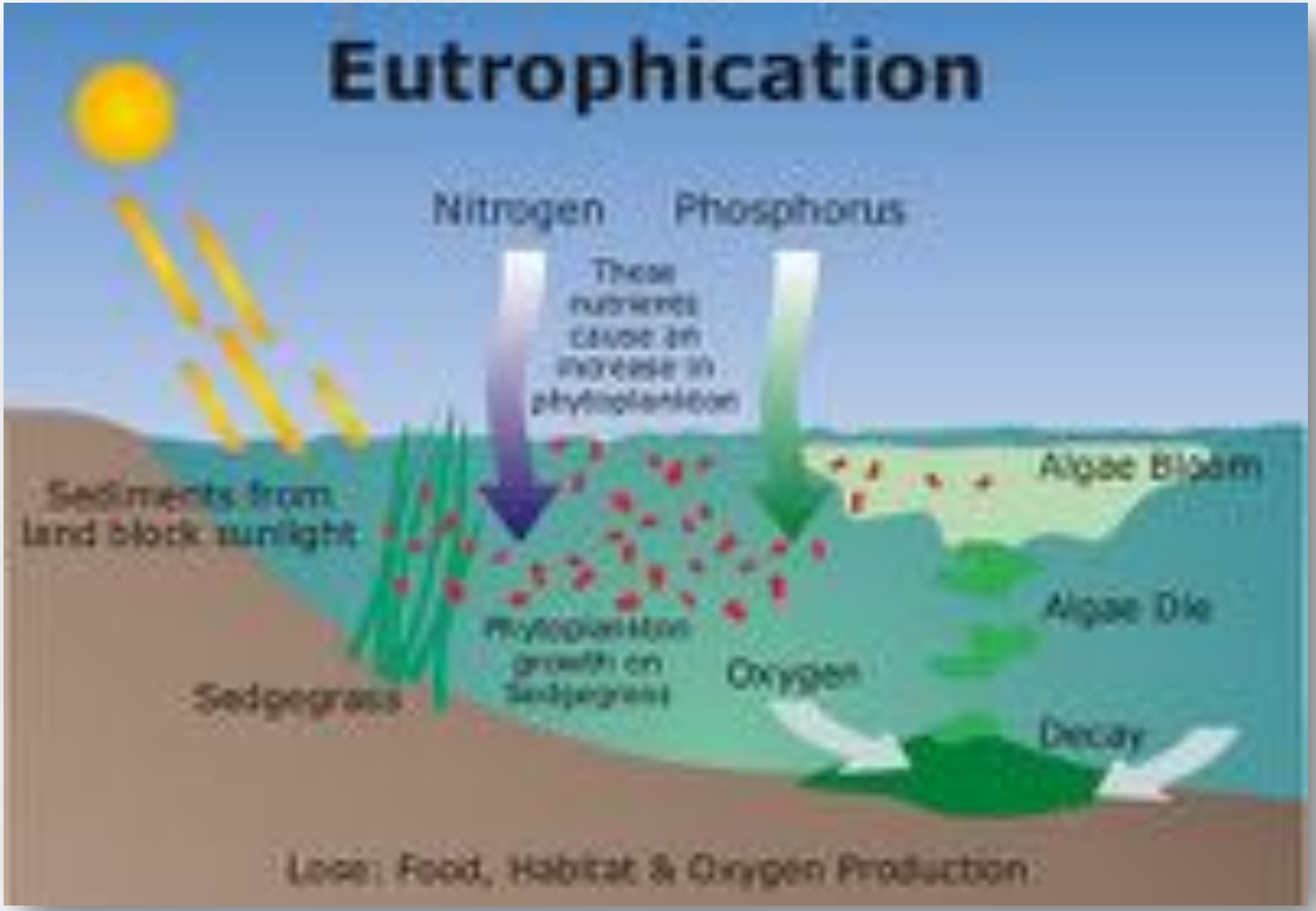


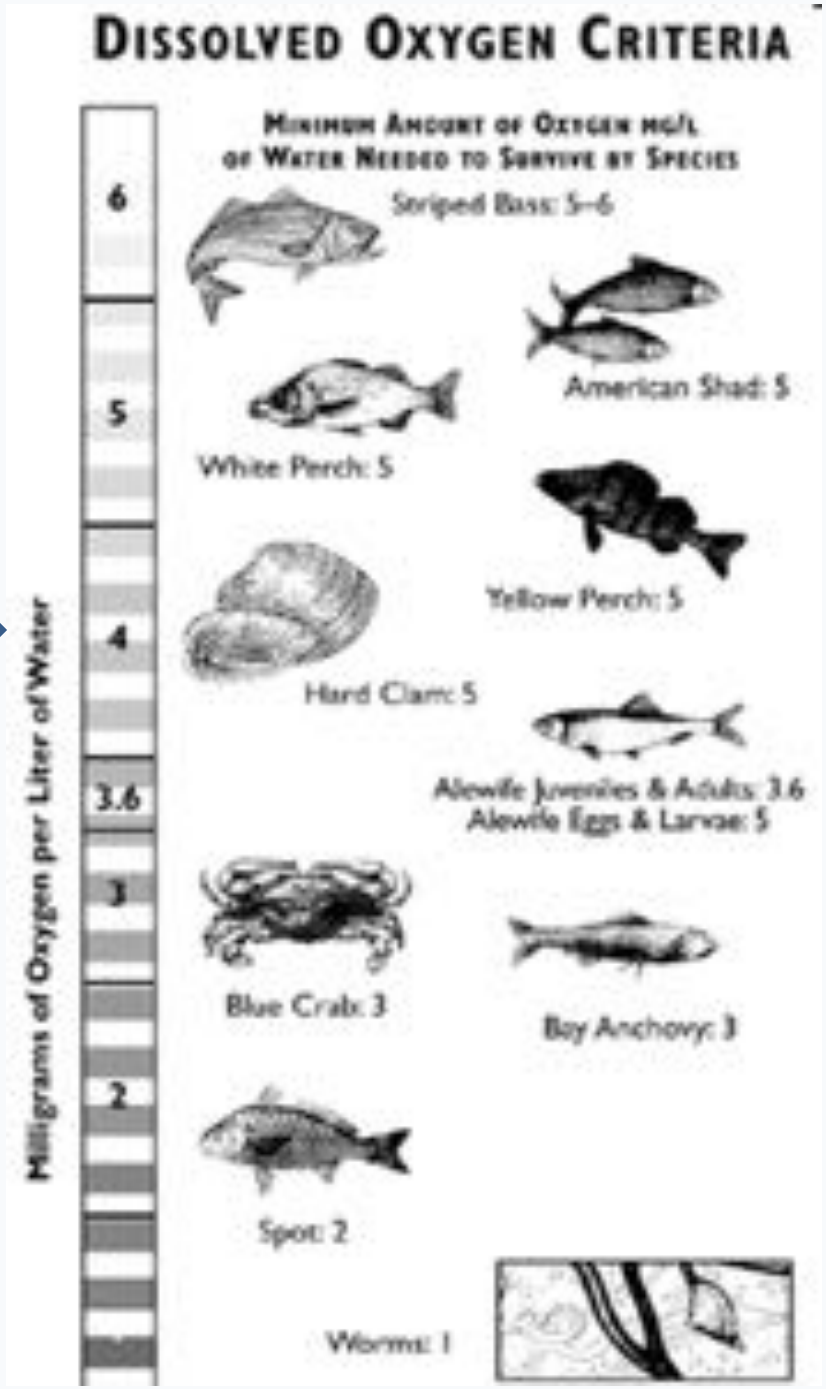
Nutrient pollution is the major problem facing the Inland Bays

DISSOLVED OXYGEN:
Levels are too low

Dissolved oxygen supports healthy and diverse populations of aquatic life.

In the past, upstream portions of the creek have had low and very fluctuating oxygen levels…
not healthy for aquatic life.

Delaware has a minimum standard of 4 mg/L for tidal creeks to be considered healthy



BACTERIA POLLUTION: Levels are too high

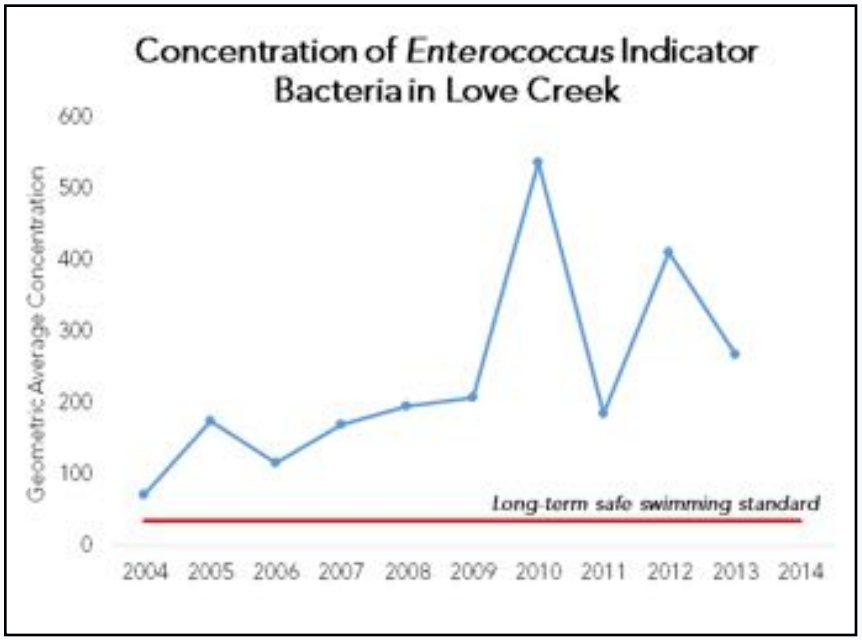
Water quality in Love Creek is worsening due to increased levels of harmful bacteria

Love Creek water exceeds the safe standard roughly 20% of the time (during the swimming season)

The overall trend shows this is getting worse.

Identifying and removing sources of harmful bacteria needs to be a priority.

BACTERIA POLLUTION: Levels are too high



- Average fecal bacteria levels from June – September **exceed the safe swimming standard in Love Creek.**
- DNREC ordered a portion of Love Creek **closed to all commercial and recreational shellfish harvesting** due to increased bacteria levels.

What's special about Love Creek

Much of the shoreline on the upper creek is still forested

While many other area creeks have banks that are taken over by invasive Phragmites…

on Love Creek there are still forested banks with a diversity of trees, and shrubs and wildflowers in the marshes

In summer and early autumn, the marsh on upper Love Creek is ablaze with flowers, including some that are rare in Delaware.

More good news…

Bay Grass: A good sign

While bay grasses have seen drastic declines throughout the Inland Bays…

Love Creek hosts the only large meadows of bay grass known in the Inland Bays

The presence of bay grasses, like Horned Pondweed, is a good sign for the health of Love Creek!

The Love Creek Report

Data the community can use to monitor changes that could threaten the health and beauty of Love Creek

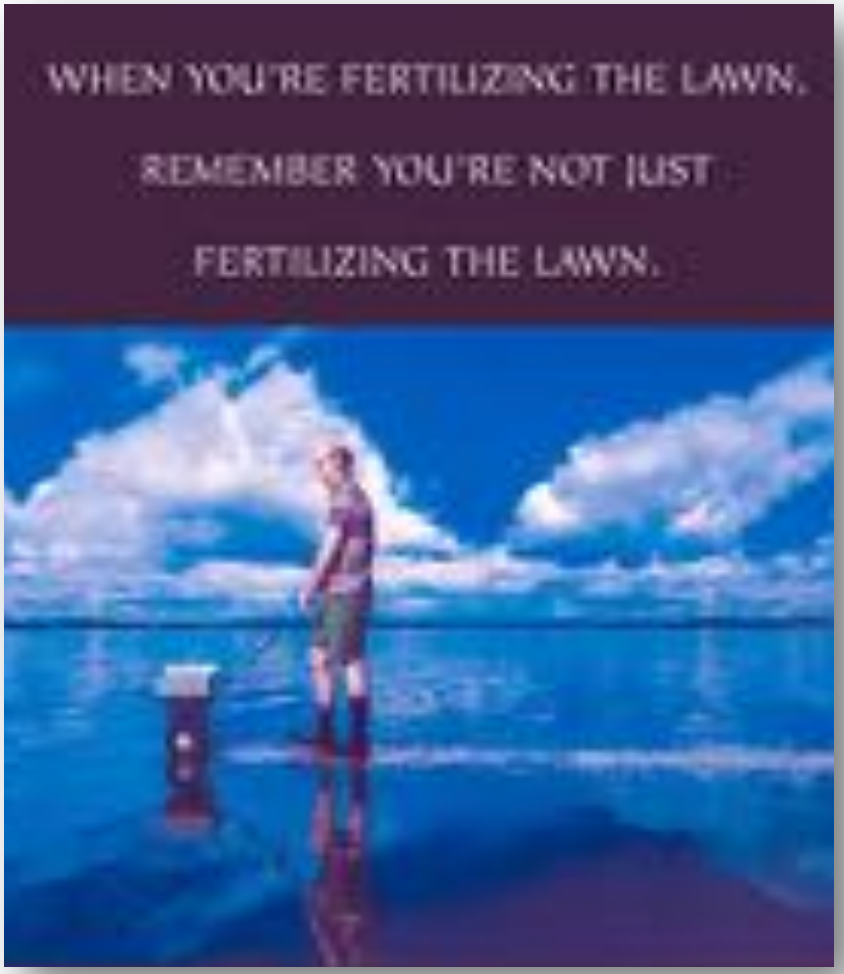
We can help Love Creek!

Recommendations for the Love Creek watershed

In your lawn and garden…

Garden for the Bays!

- ✓ Fertilize less…and at the right time
- ✓ Plant native plants
- ✓ Create a Backyard Habitat

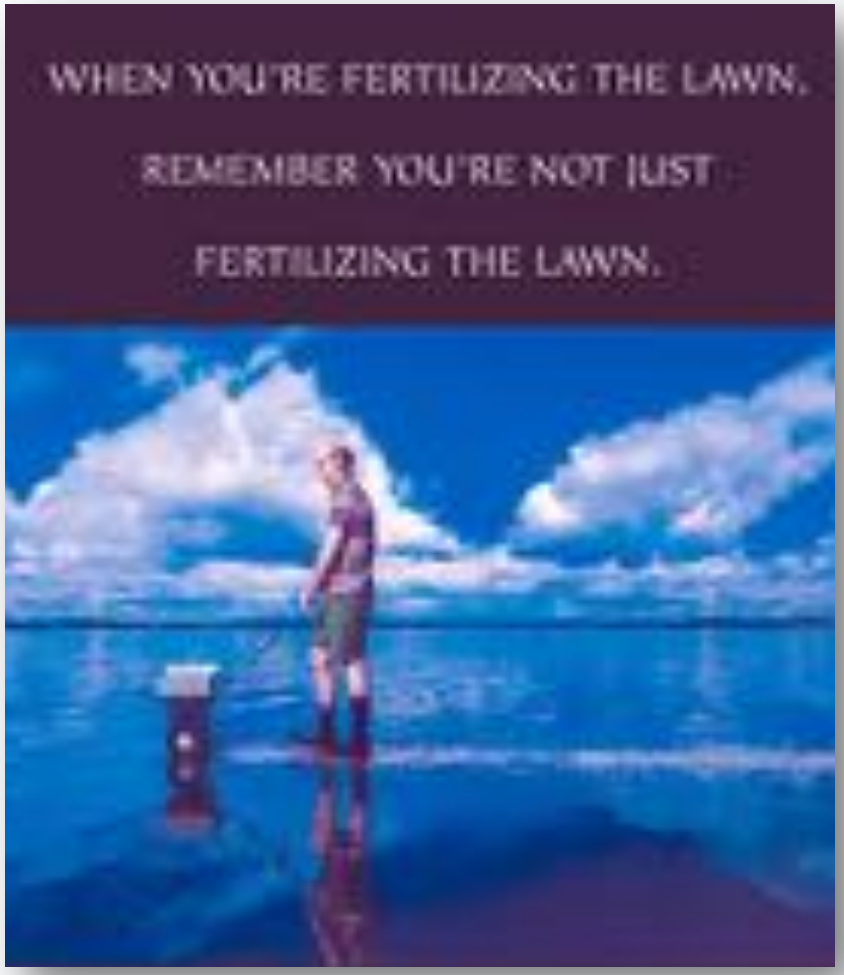


We can help Love Creek!

Recommendations for the Love Creek watershed

Encourage your community to adopt best practices to reduce their impact on the Creek

-Manage stormwater
-Use Delaware *Liveable Lawn* recommendations
-Pick up pet waste



We can help Love Creek!

Recommendations for the Love Creek watershed

Forested buffers along Love Creek and its tributaries should be protected

We can help Love Creek!

Recommendations for the Love Creek watershed

Additional water quality monitoring should be done to get a clearer picture of trends

We can help Love Creek!

Recommendations for the Love Creek watershed

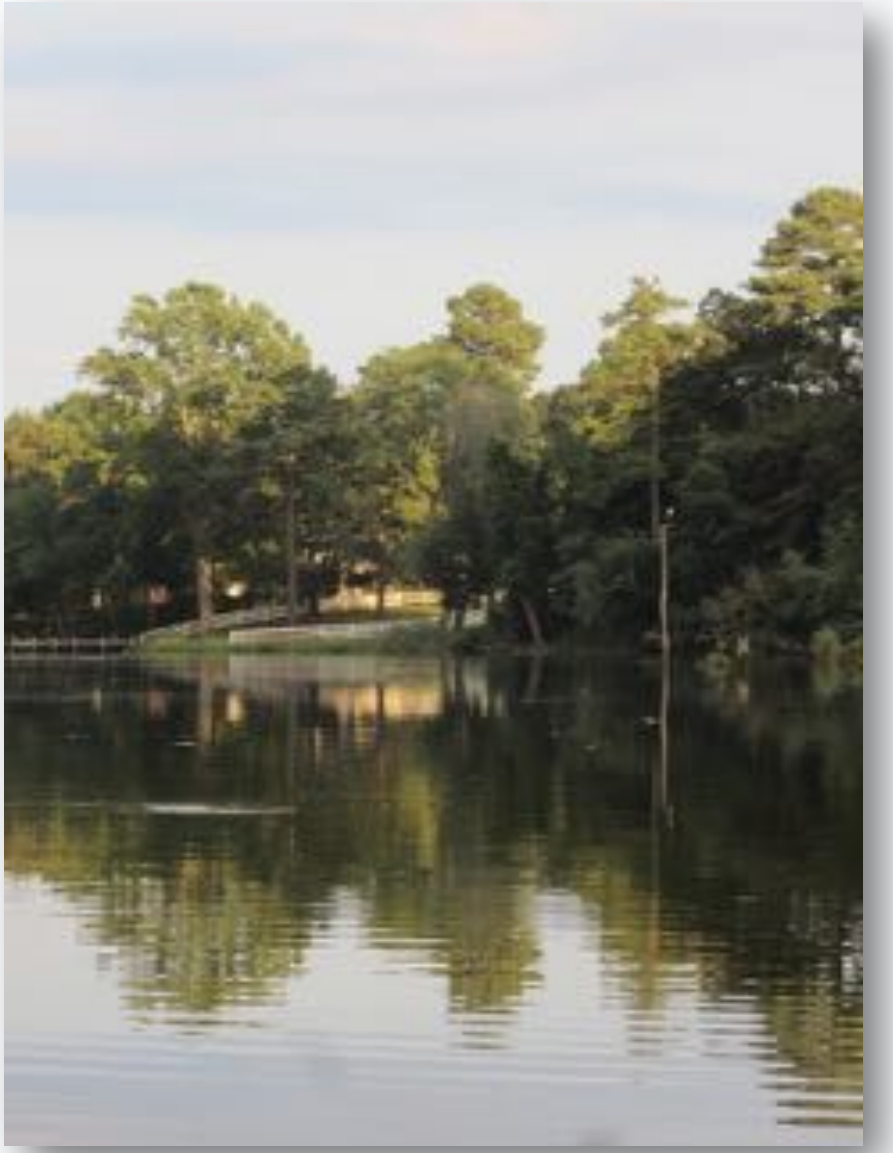
Additional tracking studies should be done to determine the main sources of bacteria

We can help Love Creek!

Recommendations for the Love Creek watershed

Stand up for your Creek!

- ✓ Attend public hearings about decisions affecting your creek
- ✓ Ask questions—get answers!



We can help Love Creek!

Recommendations for the Love Creek watershed

Contact: Sally Boswell
outreach@inlandbays.org
www.inlandbays.org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Rare Plant Project

Love Creek Team became interested in the plants on Love Creek during the Summer of 2014 when Dr. Steve Britz photographed the marsh community in bloom and shared the photos on the Love Creek blog.

http://inlandbays.org/CIBblog

Lobelia elongata

southern blue lobelia

- Campanulaceae, or Bellflower Family
- Obligate wetland plant; Perennial Broad-leaf Herb
- Lobelia: named for Mathias de L'Obel, 16th century Belgian botanist; elongata: elongated
- Coastal Plain of Sussex in the Inland Bays region
- Species reaches its northern limit in Delaware
- Blooms on the Delmarva from September to October
- Extremely rare in Delaware, known from a single extant occurrence on Love Creek; previously on Guinea Creek, Herring Creek and Dirickson Creek (also rare in Maryland; was in Wicomico and Somerset Counties)
- Fresh to brackish tidal marshes and shores


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- *L. elongata* is a state rare plant species and is at the northern limit of its natural distribution here in Delaware.

- Due to sea-level rise and higher salinity levels, as well as invasion of the European reed (*Phragmites australis* subsp. *australis*), the species has declined in Delaware and is now only known from Love Creek.

- Concern that the species could become extirpated in Delaware if conservation efforts are not made. We would not only loose a component of Delaware's natural heritage, but unique northern genotypes of the species.

- In fall of 2014, Bill McAvoy collected seed from the population of *Lobelia elongata* (southern blue lobelia) on Love Creek.

- Sent the seed to the Mt. Cuba Center and they have successfully germinated and grew about 350 plants in their greenhouses.

- Goal: To identify planting sites on Love Creek and working with Your Creek team members, add plants to the Love Creek population, and introduce plants into other suitable areas within the Inland Bays.

Potential Restoration Sites

Rehoboth Bay
Arnell Creek
Burton's Prong
Cherry Walk Fen
Dorman Branch
Hetty Fisher Glade
Love Creek
White Oak Creek

Indian River Bay
Lingo Creek
Blackwater Creek
Fresh Pond
Iron Branch
Millsboro Pond
Pepper Creek
Stump Creek
Vines Creek
Wharton Branch

Assawoman Bay
Assawoman Bay Wildlife Area
Dirickson Creek
Miller Creek

PLANTING DATA FOR LOBELIA ELONGATA

Date:_____ Start Time:_____ End Time:_____ Est. of tide High____
Ebb___ Low___
Name(s) of Planters:

_____

_____

_____

_____

Site/Creek Name: _____
Number of Plants Planted: _____
Brief Site Description:

Substrate Planted on (e.g., hummock, bare soil): _____
Associated Plant Species:

Salinity Level- if equipment is available (ppt;): _____
GPS Coordinates (these can be obtained using Google maps on your smart phone)

_____
Photographs Taken ____
Other Notes:

MONITORING DATA FOR LOBELIA ELONGATA

Date: Start Time:_____ End Time:_____
Name(s) of Monitor:

_____
_____
_____

Site/Creek Name: _____

Number of Plants Counted: _____

GPS Coordinates of identified plants

_____

Phenology: vegetative - flower - fruit

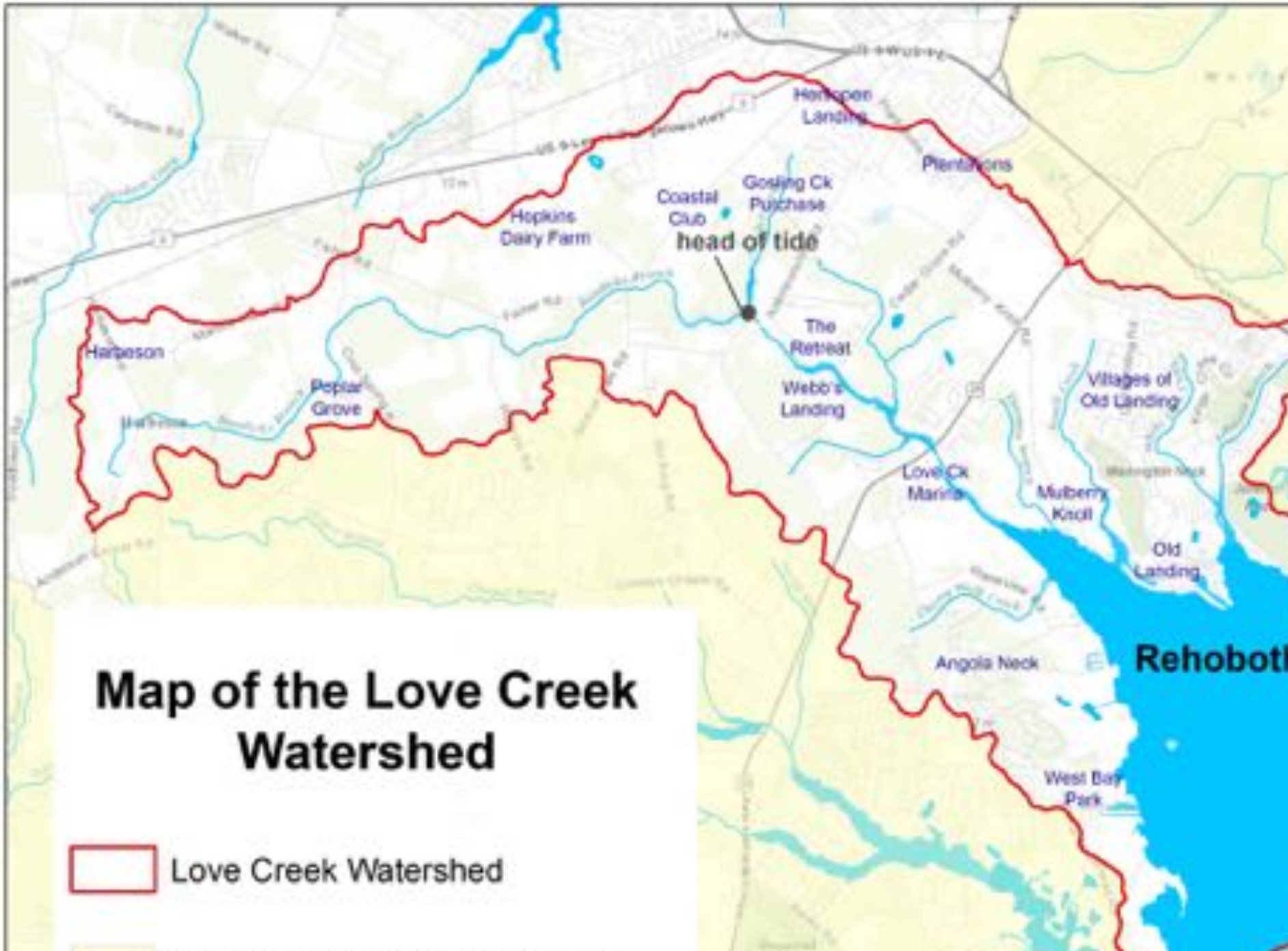
Condition (e.g., robust, feeble):

Brief Habitat Description:

Associated Plant Species:

Salinity Level- if equipment is available (ppt;): _____
Photographs Taken ____
Other Notes:


Burton Pond
Boat Ramp
Cem
Angola
Cem
Pine Water
Burton
Boat Ramp
Prong
4.5
5.5
2.0
5.5
4.5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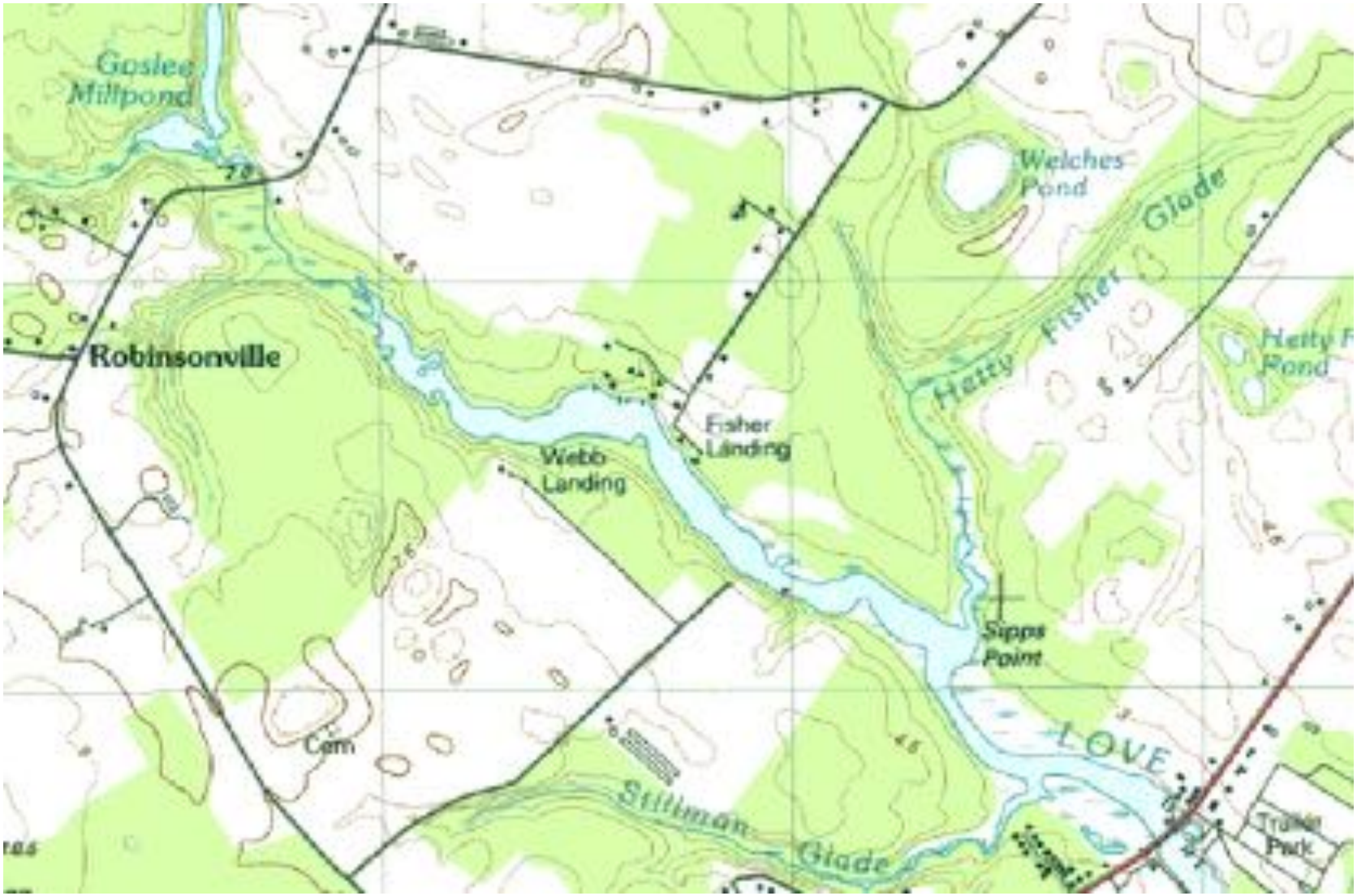
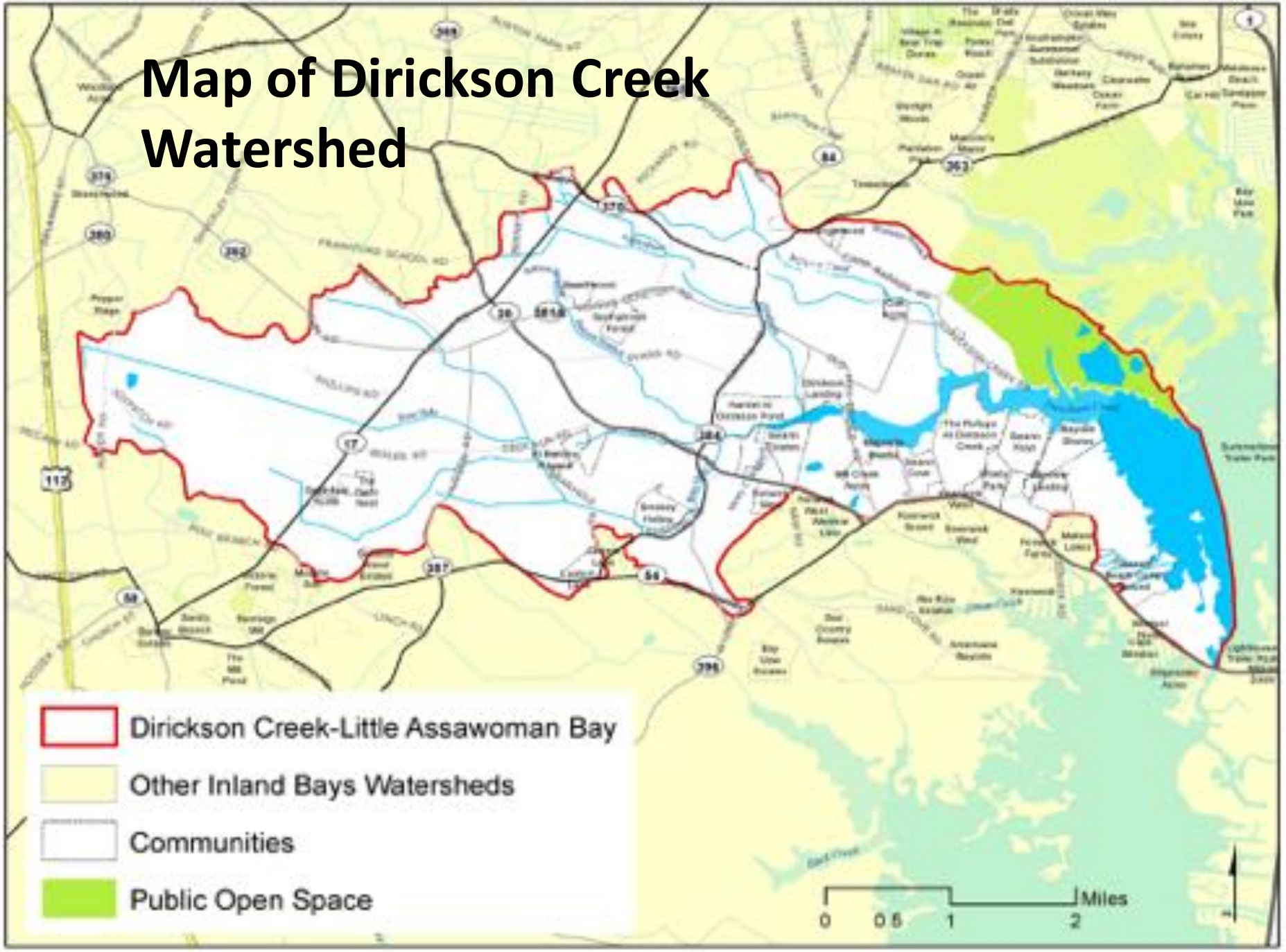
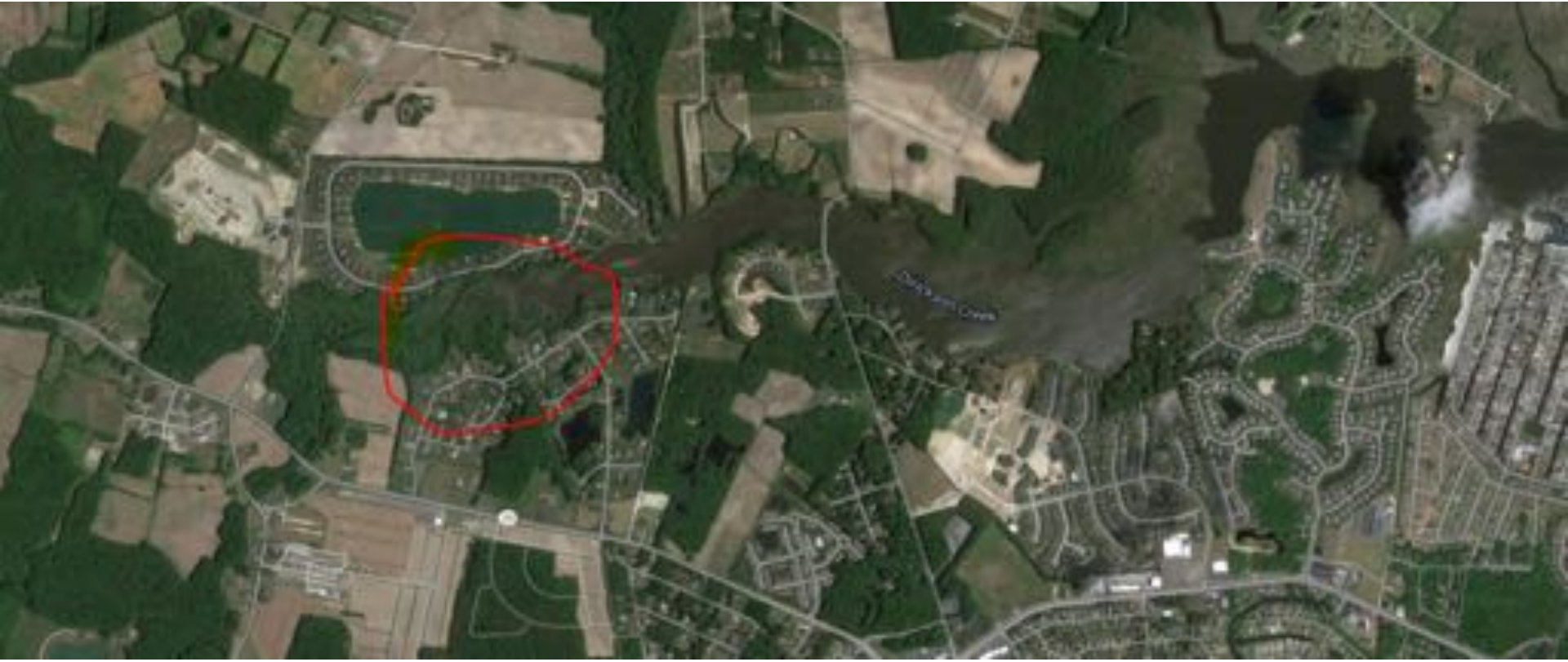

Goslee Millpond
Welches Pond
Glade
Hatty Fisher
Robinsonville
Fisher Landing
Webb Landing
Sipps Point
LOVE
Cem
Stillman Glade


Old Town

Map of Dirickson Creek Watershed




Dennikson Creek
This would be a high likelihood
place for Lobelia elongata

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