



# State of the Lakes 2014

# I'm Richard Litts Watershed Monitoring Coordinator



# Agenda



- SCIENCE LESSON
- SEPTIC SYSTEM ISSUES
- ALGAE / TOXIN MONITORING
- WHAT WE CAN DO TO HELP
  - Guest Speaker Tim Bishop on Proposed WID
- NEW HORIZONS

# **The 2 biggest problems in Tenmile Lakes:**

# Invasive Species / Weeds



# Algae Blooms



Three Main Concerns:

**Nitrogen**

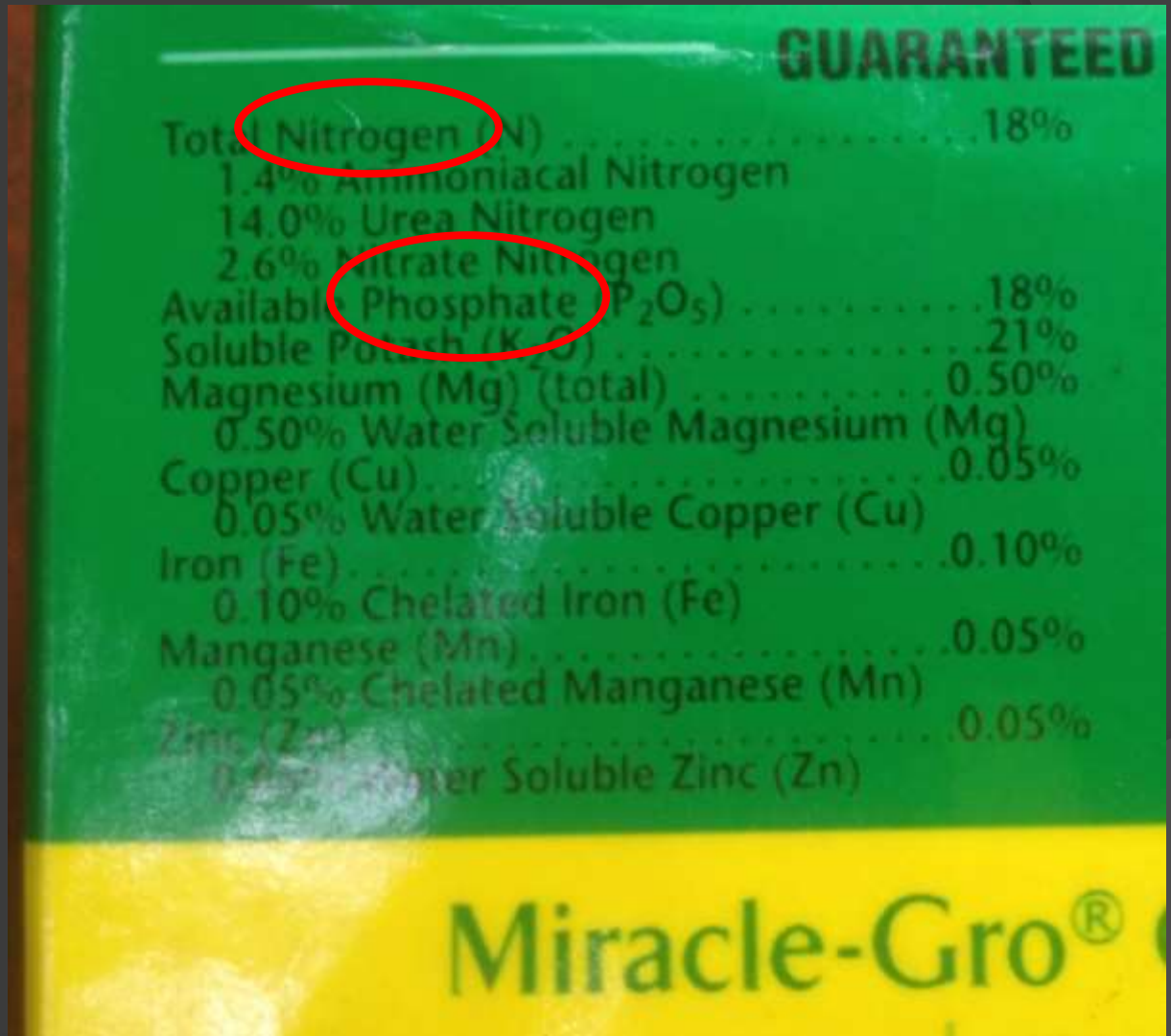
**Phosphorus**

**Sediment**

# Nitrogen + Phosphorus = “Nutrients”

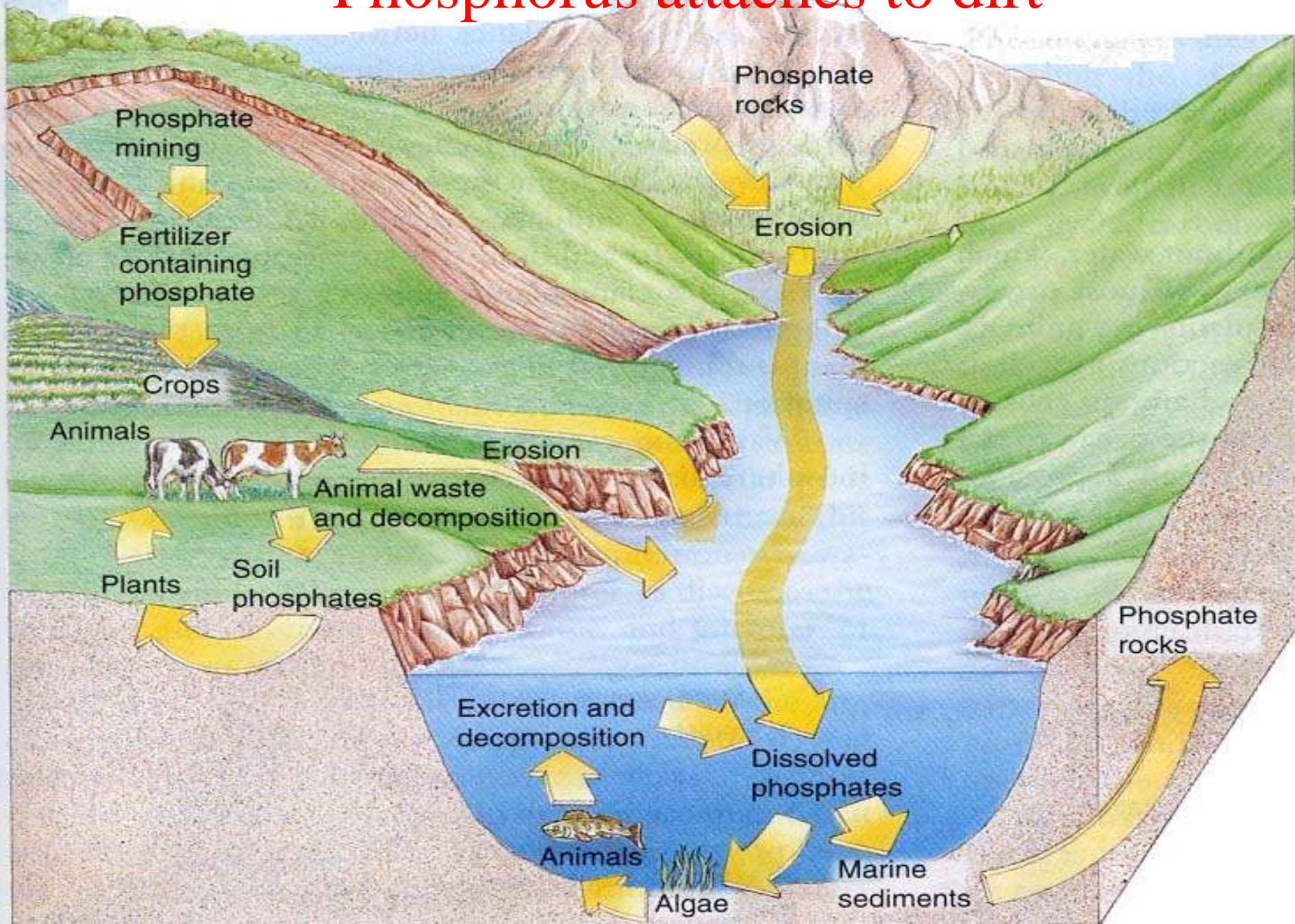
## Fertilizer

When in high concentrations in our lake, it fertilizes the algae and **causes algae blooms**, and enables the weeds in the lake to grow faster.





# Phosphorus attaches to dirt



## Total Nitrogen ( $\mu\text{g/L}$ ) Monthly Average 2006-2013



## Total Phosphorus ( $\mu\text{g/L}$ ) Monthly Average 2006-2013

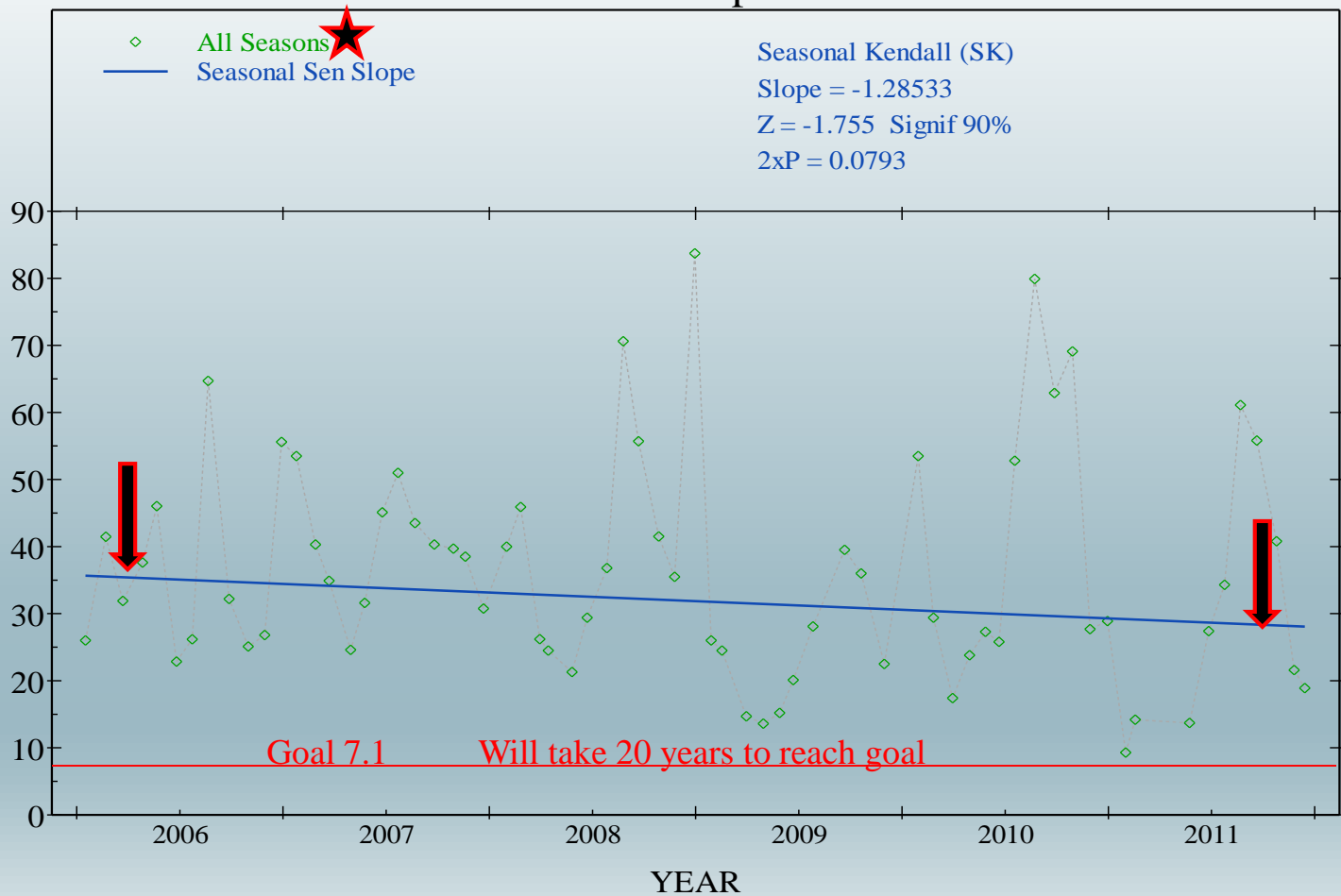


# Several potential sources

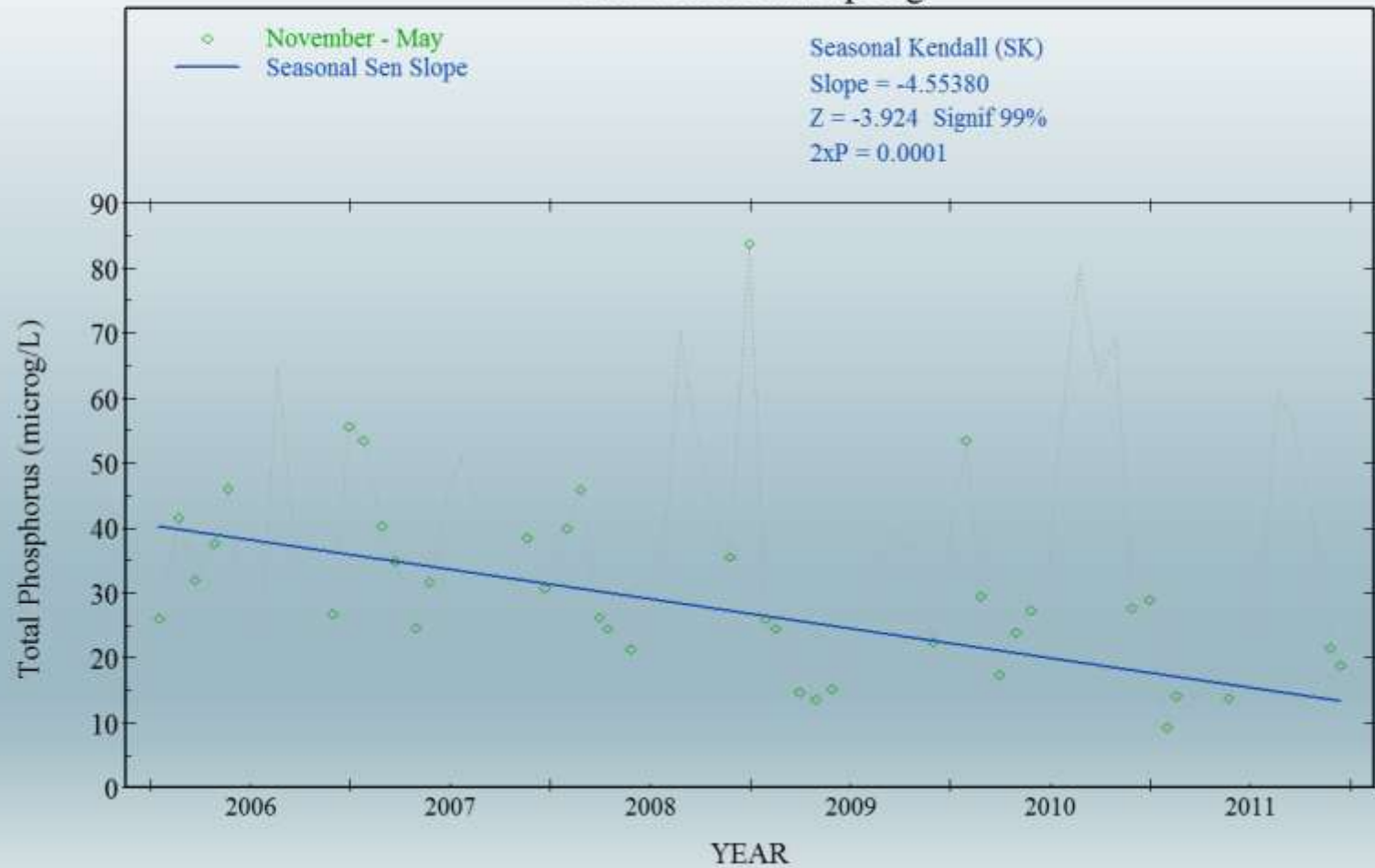
- ⦿ Boat wakes eroding the shore
- ⦿ Fertilizer run-off from lawns around the Lakes
- ⦿ Fish, wildlife, and pet waste
- ⦿ Phosphorous from the bottom of the lake recycling back into the water column
- ⦿ Septic problems from increased summertime use of vacation homes

# Trends

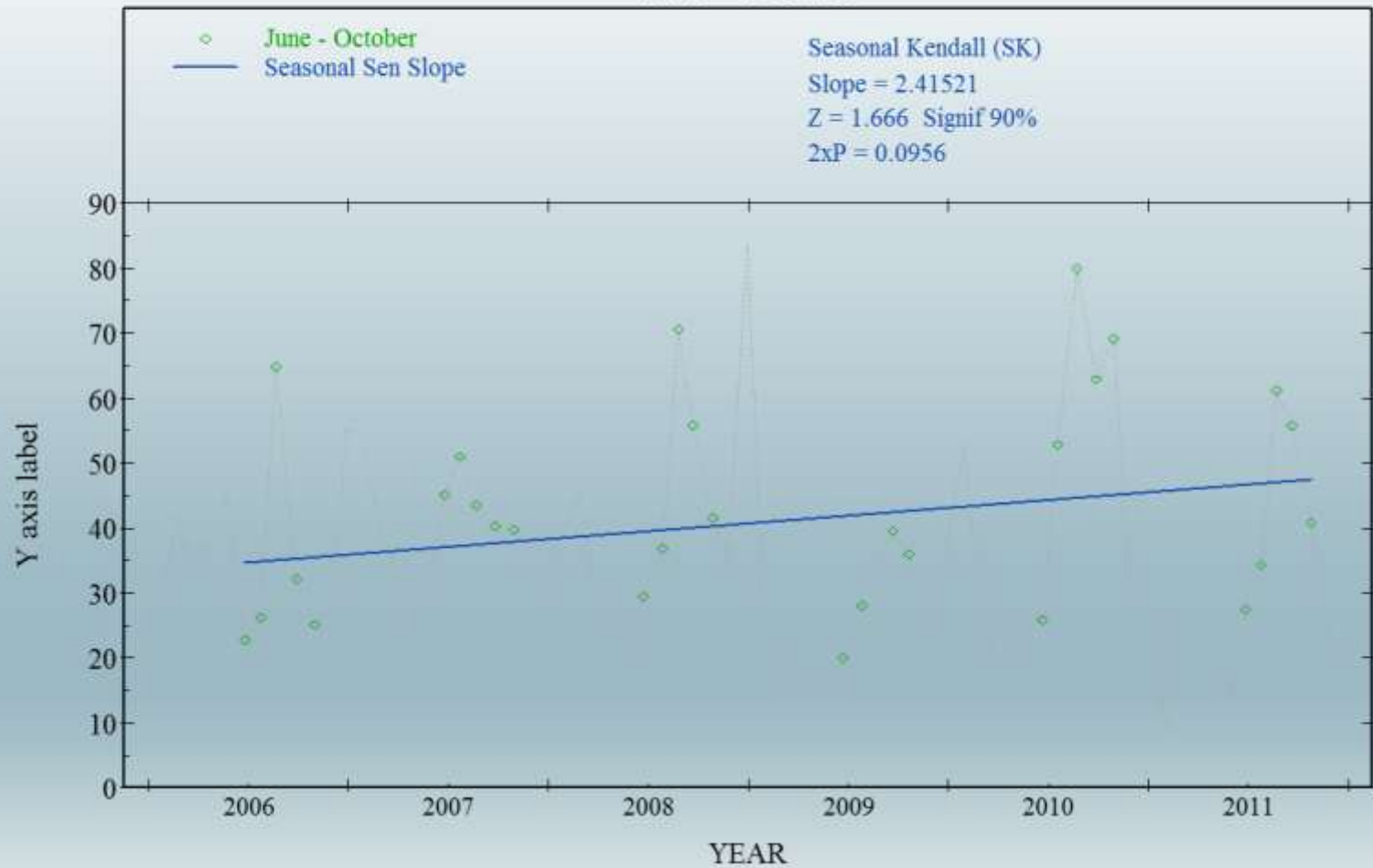
## N Lake Big Cr Arm Total Phosphorus



## N Lake Big Cr Arm Total Phosphorus Trend Fall Winter and Spring



## N Lake Big Cr Arm Total Phosphorus Trend June - October



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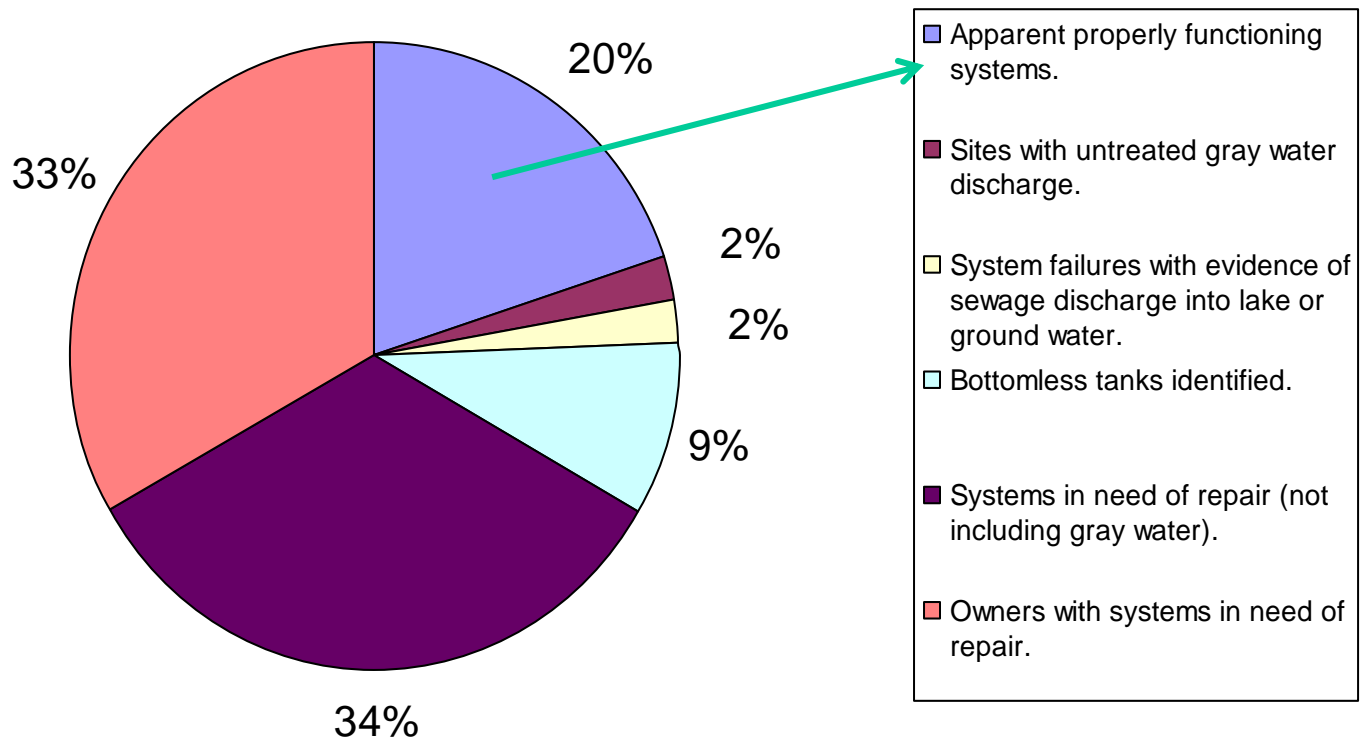
# Pre-1974 Septic System Survey

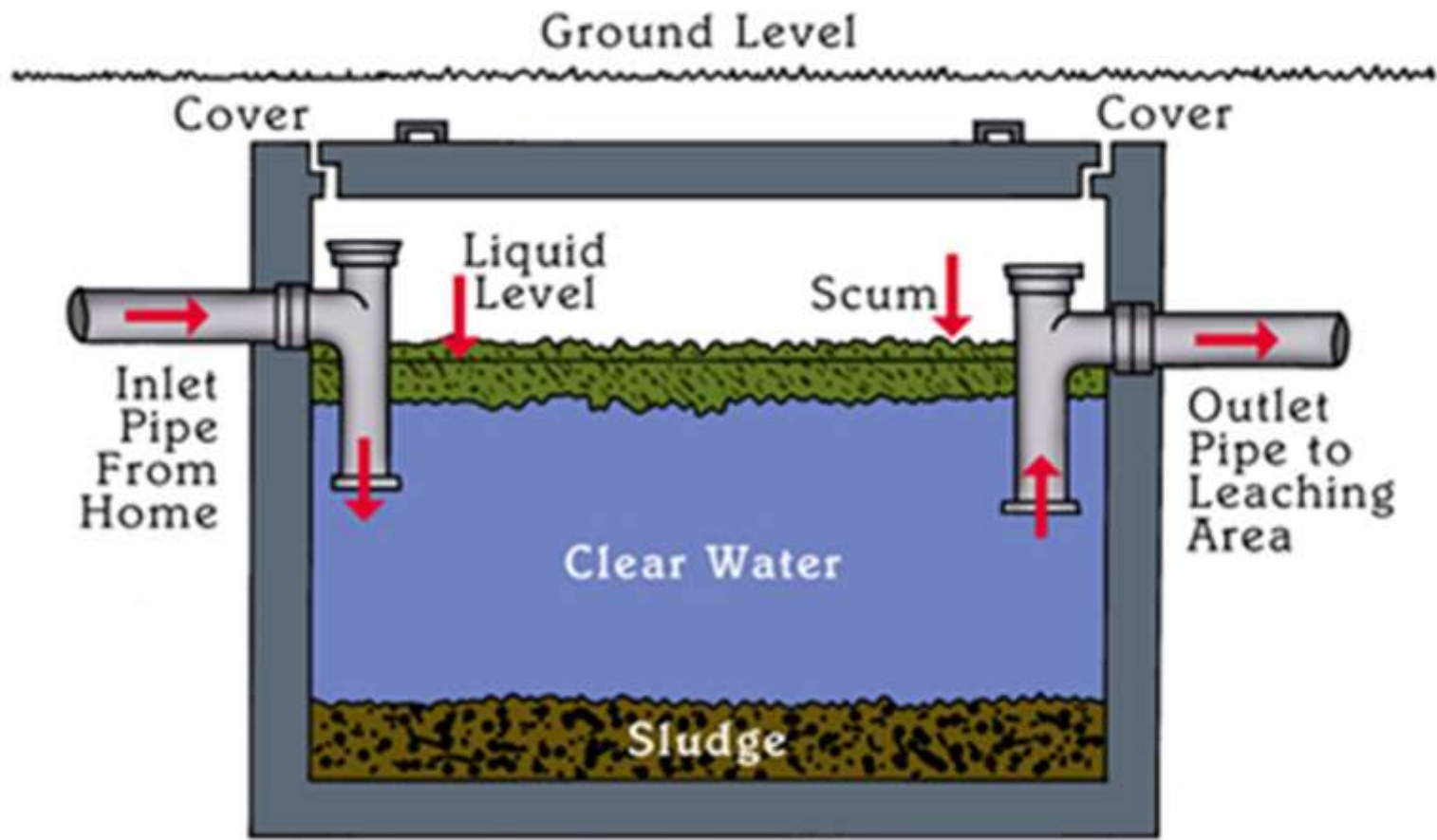
Worked with county health department to inspect 26 lakefront homes in 2006 and 2007.





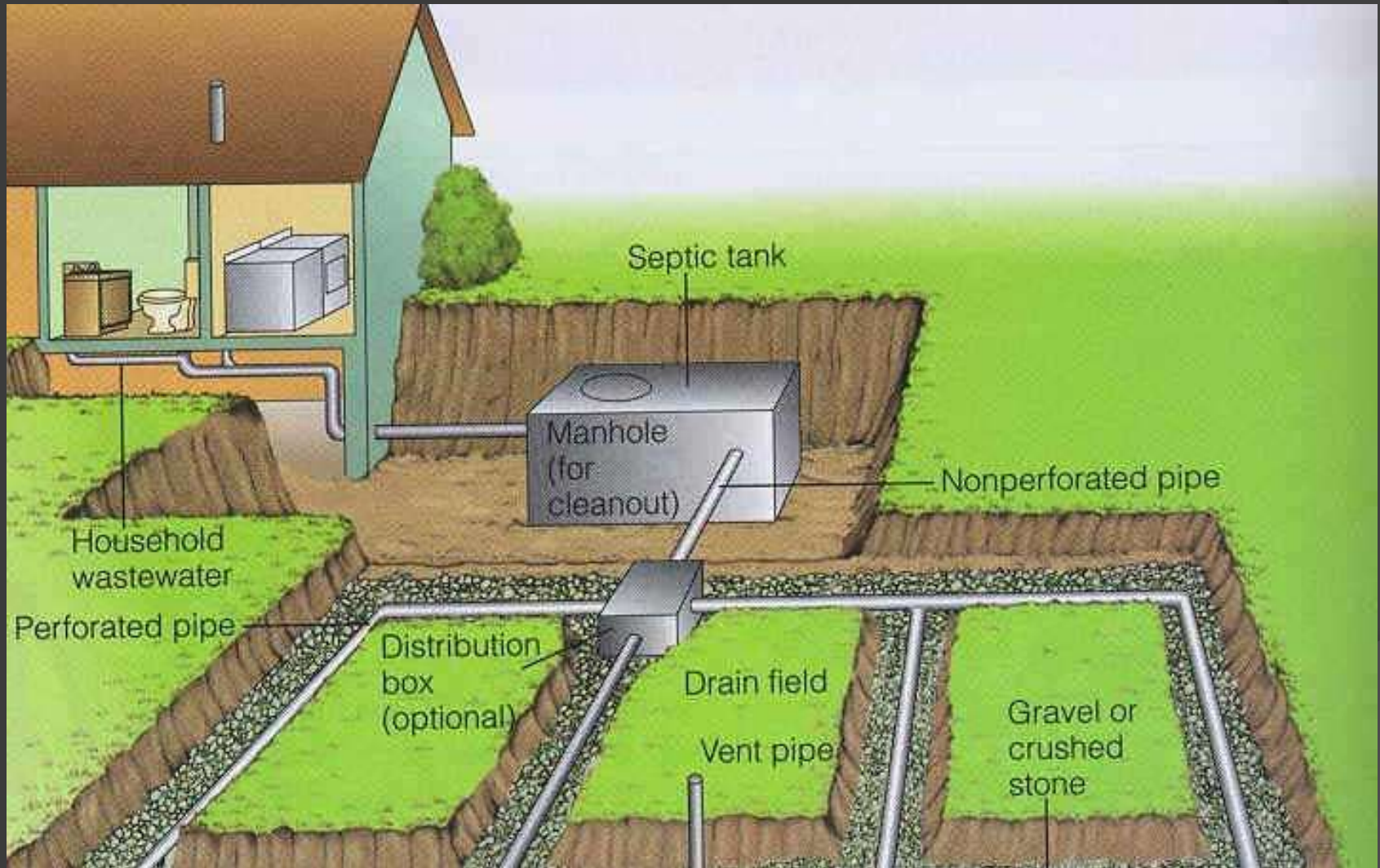
## Results of Tenmile Lakes Septic Survey





**Septic Tank**

# Septic Systems





# Agenda

A black bear is lying on a large, mossy log in a stream. The bear's head is turned towards the camera. The water is clear, and the surrounding environment appears to be a natural, wooded area.

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# Toledo Ohio on Lake Erie





# Toxin Alert Levels

1 µg/L – Drinking water advisory

## Recreational Advisories

Table 2. Health advisory guideline values for cyanotoxins in Oregon's recreational waters

	Anatoxin-A (µg/L)	Cylindrospermopsin (µg/L)	Saxitoxin (µg/L)	Microcystin (µg/L)
Guideline Value	20	6	100	10

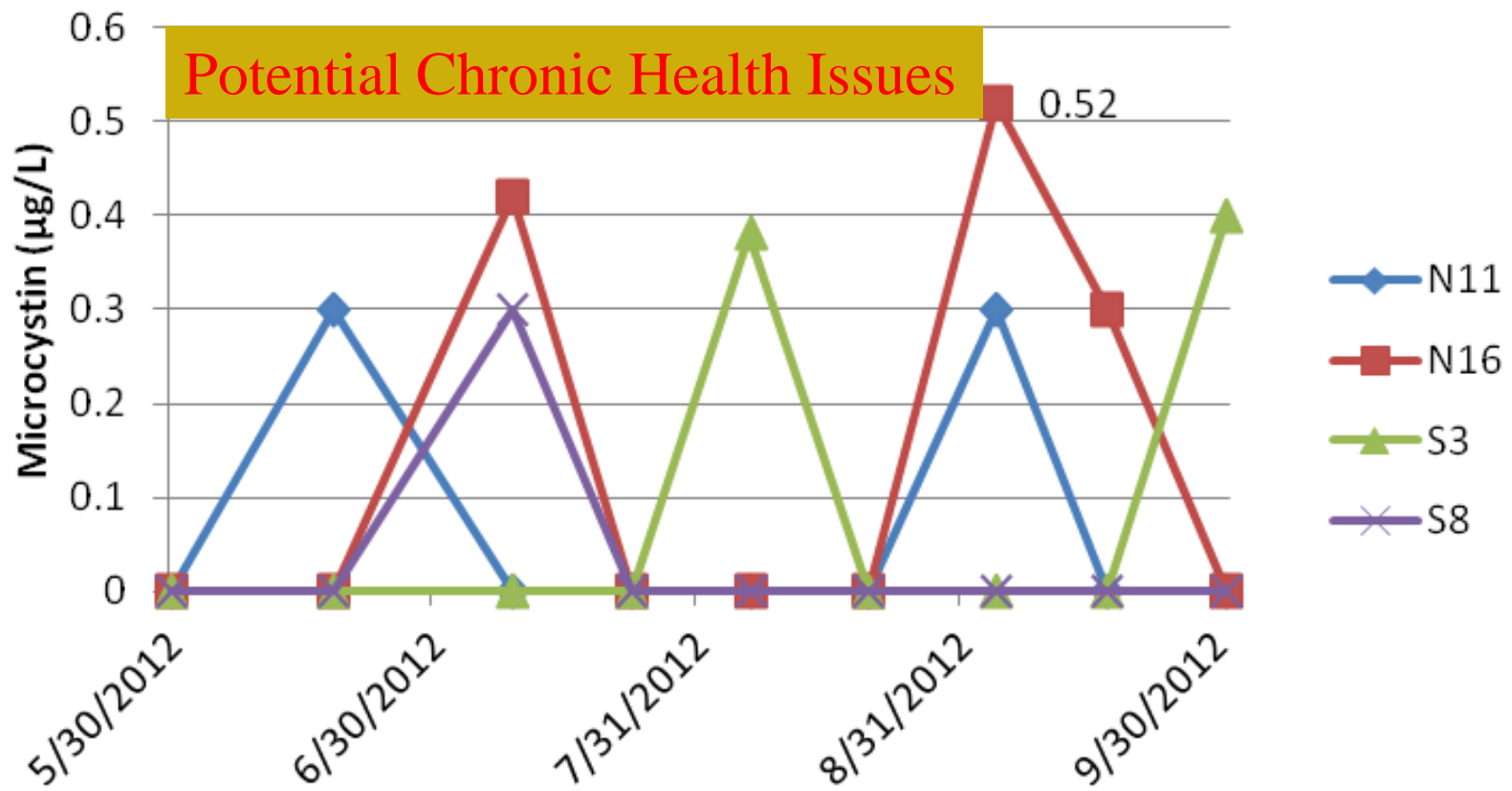
2013 Recreational Advisory on the lakes:  
160 µg/L



# Toxin Summary 2012

## Standard Sites

### Summer 2012 Microcystin at Std Lake Sites



# Pet Toxin Guidelines

## Risk to Animals

Animals are also sensitive to cyanotoxins. The main route of exposure occurs through ingestion when pets and wildlife drink water from a harmful algae-filled lake or pond and by licking their fur after swimming. If toxins are being produced at the time animals drink the water, the animals can become very ill and even die.

Because dogs are a sensitive companion animal and there have been confirmed dog deaths due to cyanohABs, OPHD has developed dog-specific guideline values for cyanotoxins in recreational water (Table C-3).

Table C-3. Dog-specific guideline values for cyanotoxins in recreational waters

Cyanotoxin	Anatoxin-a	Cylindrospermopsin	Microcystin	Saxitoxin
Dog Guidance Value ( $\mu\text{g/L}$ )	0.6	0.2	0.2	3

OPHD does not intend to use these dog-specific guideline as the basis for public health advisories. Rather, they are offered as a resource to veterinarians and veterinary associations to use as they deem appropriate. OPHD may use these values to aid discussions with individual veterinarians or pet owners. Contact OPHD for details about the derivation of these dog-specific values.

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**We've got some problems...  
What can we do about them?**

# Coos County Septic Workgroup Ideas

- Currently a work-in-progress (Informational topic)
- Form a Water Improvement District
- Require septic system inspections on all lakefront properties
- Require fixing any problems that are found
- Seeking financial aid to help landowners make the needed repairs
- Not all properties need a septic system
- Require additional inspections every ~10? yrs.
- Possibly expanding the scope of the District to include Weed Abatement, Riparian zone improvements, and looking at the feasibility of Dredging parts of the lake.

# Coos County Septic Workgroup Ideas

- ◉ District formation would require a vote of the registered voters within the District.
- ◉ EPA has a current lawsuit against the ODEQ for not doing more to solve septic type issues on the Oregon coast. Tenmile Lakes is mentioned as an example. We could try to put more pressure on ODEQ to solve this issue. Mayor Warner is currently setting up a meeting with ODEQ and our state senator.
- ◉ Our thanks to all 3 of our county commissioners for their support and especially to Commissioner Cribbins for her leadership in the workgroup. And to the county staff that has helped guide the workgroup.

**PROPOSED  
TENMILE LAKES WATER  
IMPROVEMENT DISTRICT**

**Tim Bishop**

## Tenmile Lake Water Improvement District



### Tenmile Lake Water Improvement District

- \* Form a Local Citizens Operated Water Improvement District
- \* Solve our Lake Issues Locally

#### **1: Blue-Green Algae:**

As we are all aware, Tenmile Lakes has been dealing with Blue-Green Algae blooms for several years now. This District will be doing everything it can to get the Blue-Green Algae blooms under control.

#### **2: Weed Control:**

In October of 1997, at the first of the Tenmile Lakes three scoping meetings, participants established a list of problems related to the management of the Lakes. Aquatic weeds were identified as a large problem that has negatively impacted many of the Lakes' beneficial uses.

#### **3: Septic Systems:**

We need a accurate inventory of all of the septic systems on the Lakes. This will assist the District in assessing the issues and coming up with workable, neighbor friendly solutions.

#### **4: Dredging:**

We need to explore the possibility of suction harvesting, not only of the weeds that do not belong, but the sediment that has built up over the years.



## Tenmile Lake Water Improvement District

### Tenmile Lake Water Improvement District

- \* Forming a Local Citizens Operated Water Improvement District
- \* Solve our Lake Issues Locally

#### 5: Fisheries:

It is important for the Lakes to have healthy fisheries because fishing on the Lakes is a major draw for many of the people that come to visit our Lakes. Also, if the fishery is healthy, it means that the Lakes are also healthy.

#### Boundaries:

Boundaries for the District will be all lake properties with a County PCLCD listing of "Recreational Use".

Agriculture and timber lands have a State and Federal management system that allow the District to work through state and federal agencies to deal with any issues that may arise.

**Tax Rate Per \$1,000 of  
Assessed Value will be \$1.00**

#### Example:

For a property valued at \$100,000.00, the tax will be \$100.00 per year.



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# New Watershed Projects

- Benthic Sampling in Tenmile Lakes
- Zooplankton
- Saunders & Eel Lake
- Fish monitoring with ODFW
- Macroinvertebrates in streams

# Canal Dredging



Coos Bay / North Bend



Palouse Creek Road

Palouse Creek

Adams Ridge Tract 3

Templeton Arm  
South Tenmile Lake

Elliott State Forest

Adams Ridge Tract 2

Robertson Creek

Adams Ridge Tract 1

Johnson Creek

Hatchery Creek

# Benson Ridge



Coos Bay

Highway 101

South Tennile Lake

Lakeside

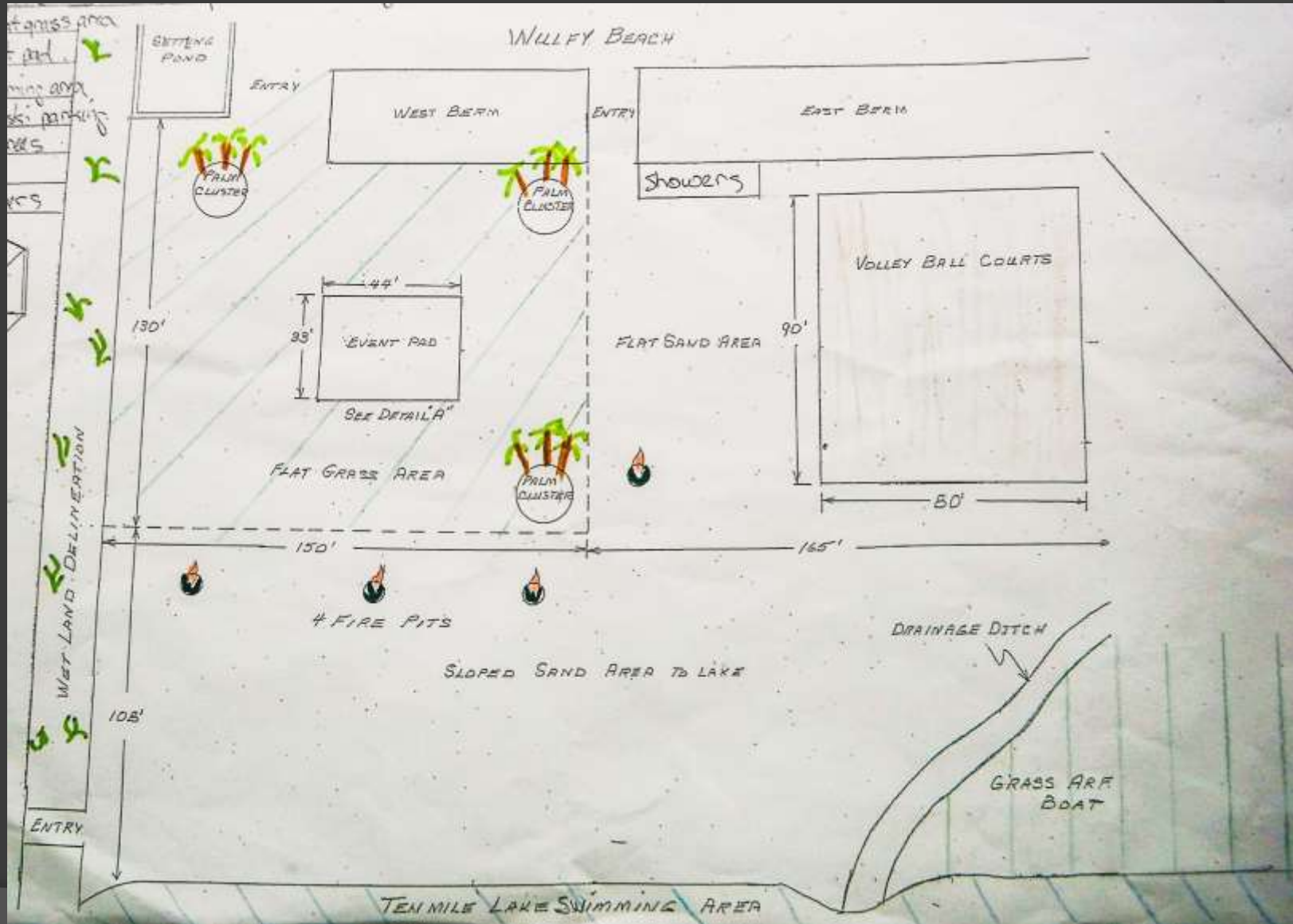
North Tennile Lake

Benson Ridge Road

Alder Gulch

N

# Beach Paradise Coming Soon



Thank You  
for your interest in Tenmile Lakes!

