

# Ocean Shores 2018

Northwest Aquatic Eco-Systems



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# Ocean Shores 2018



Northwest  
Aquatic  
Eco-Systems

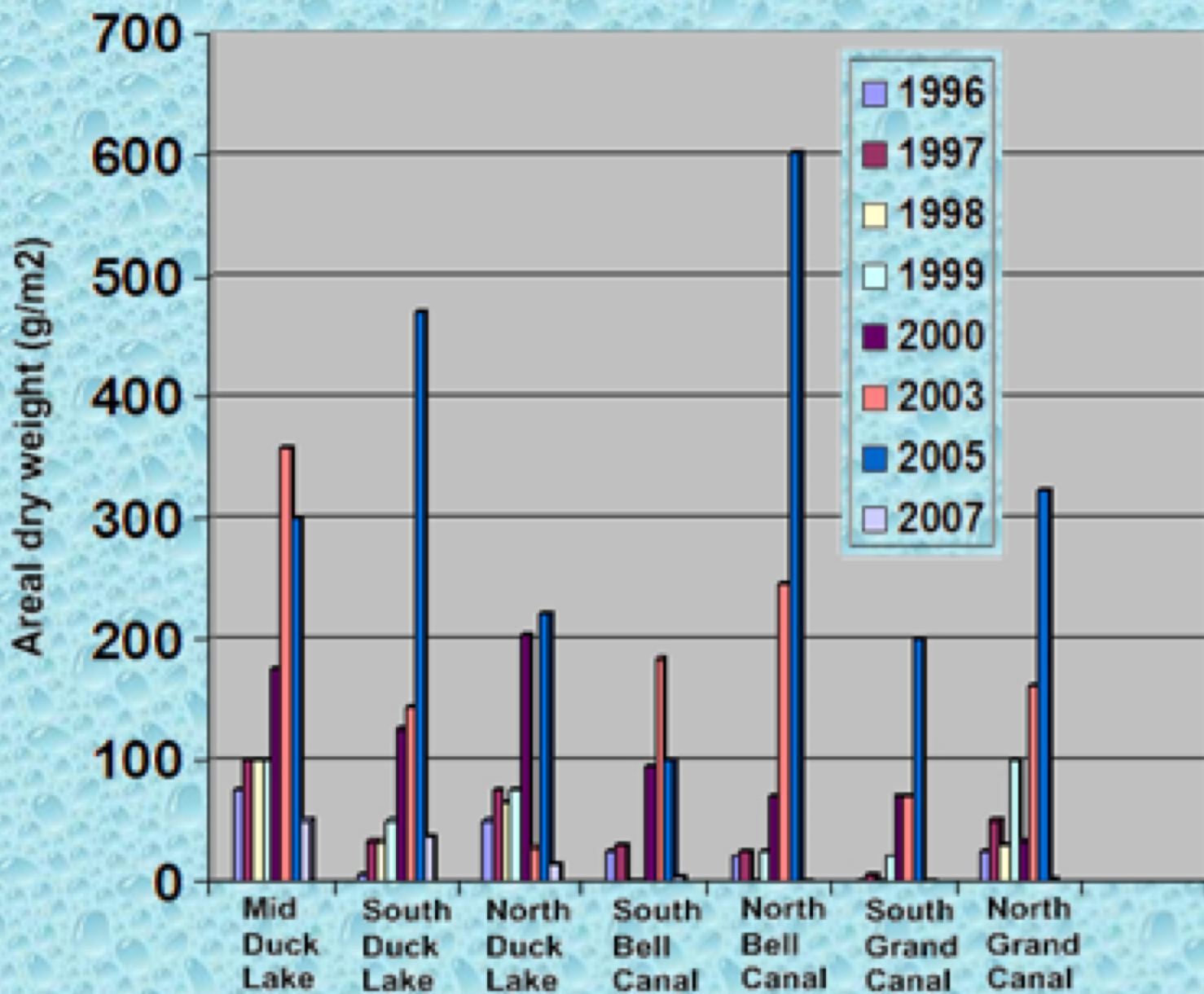
# Timeline Milestones

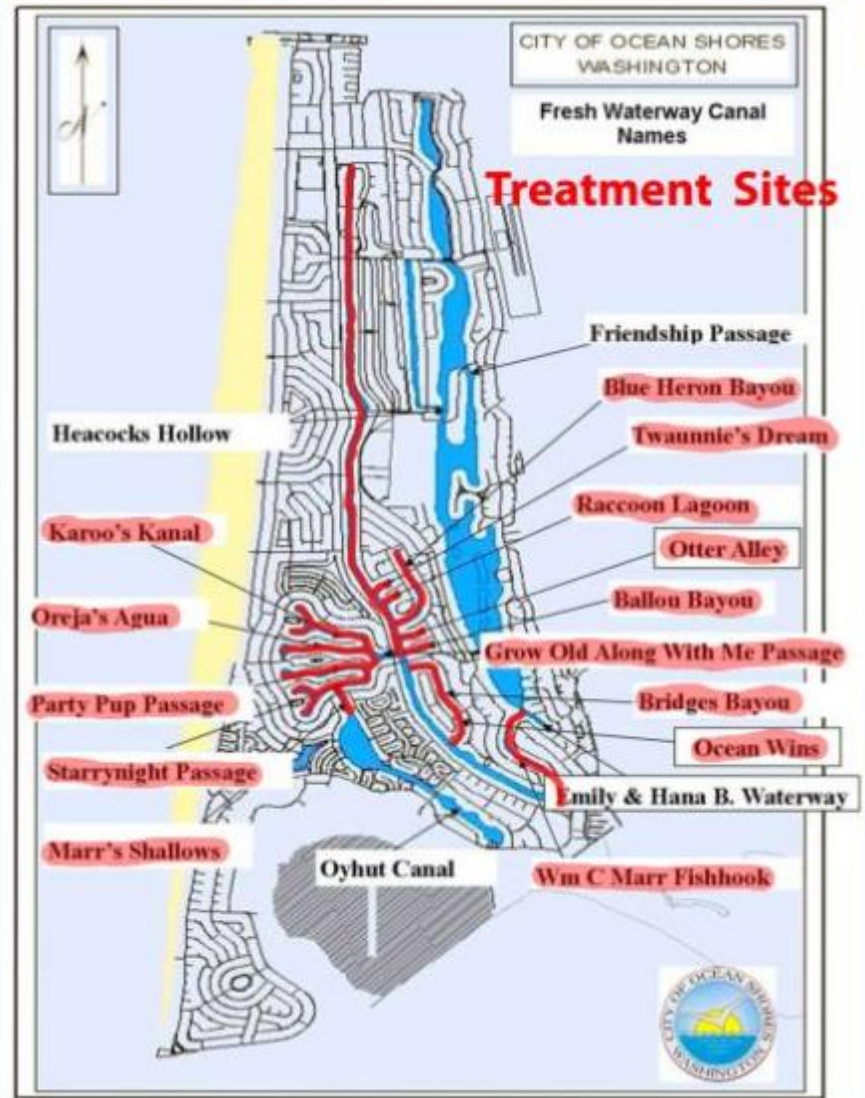
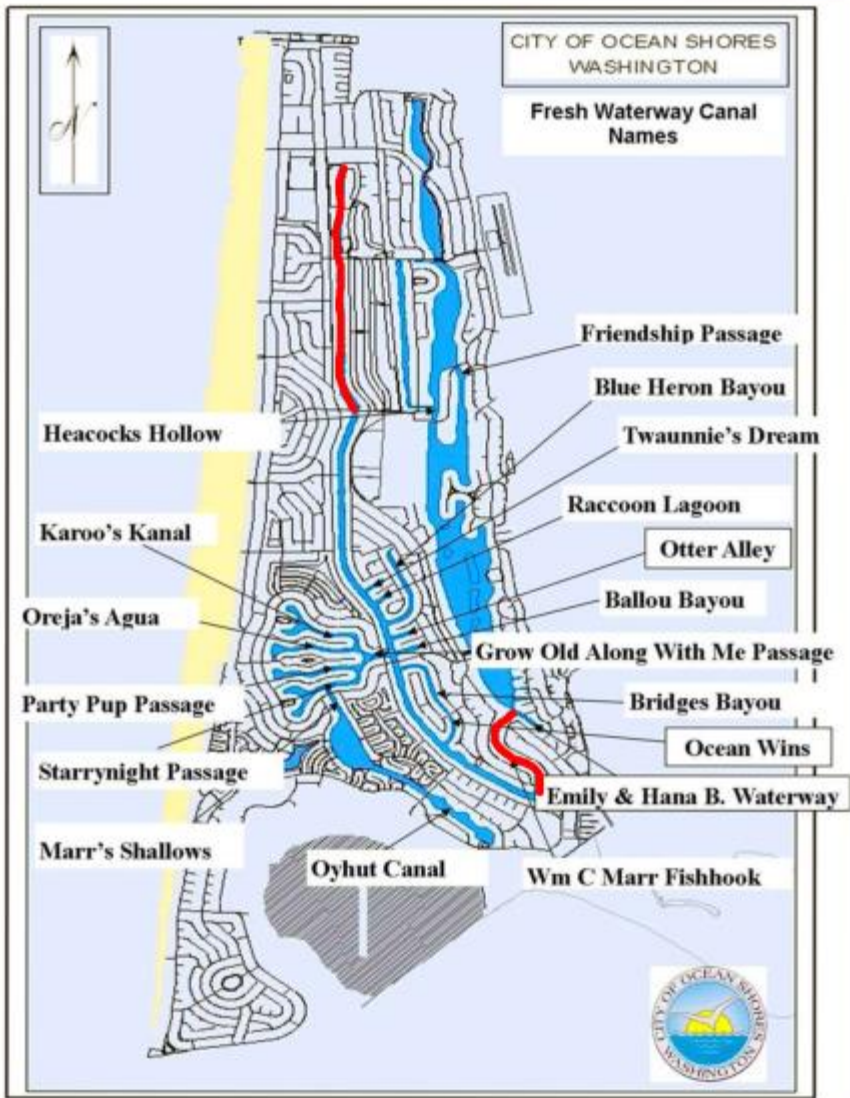
- Fluridone 2007-2008
- 2009 & 2010 Grass Carp
- 2011 Canal Treatment
- 2011 Survey
- 2014 Survey
- 2015 - 2018
- Treatment

# Aquatic Plant Survey Results 1996 - 2007

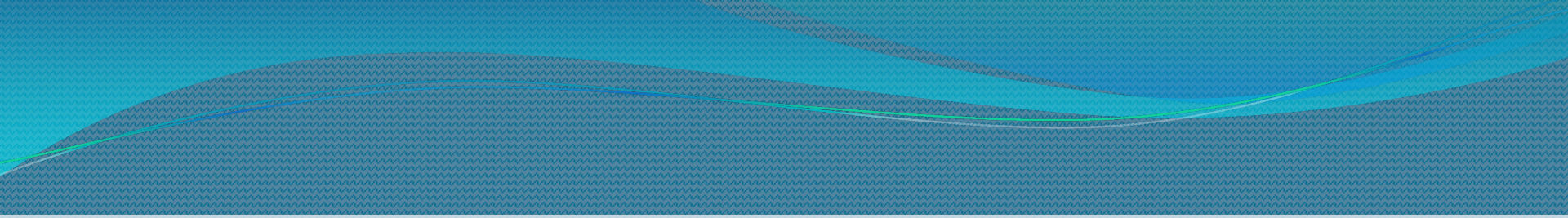
Turnstone Environmental

B  
I  
O  
M  
A  
S  
S  
G  
R  
A  
P  
H









(A)  
Emergent  
Weeds



(B)  
Floating  
Weeds



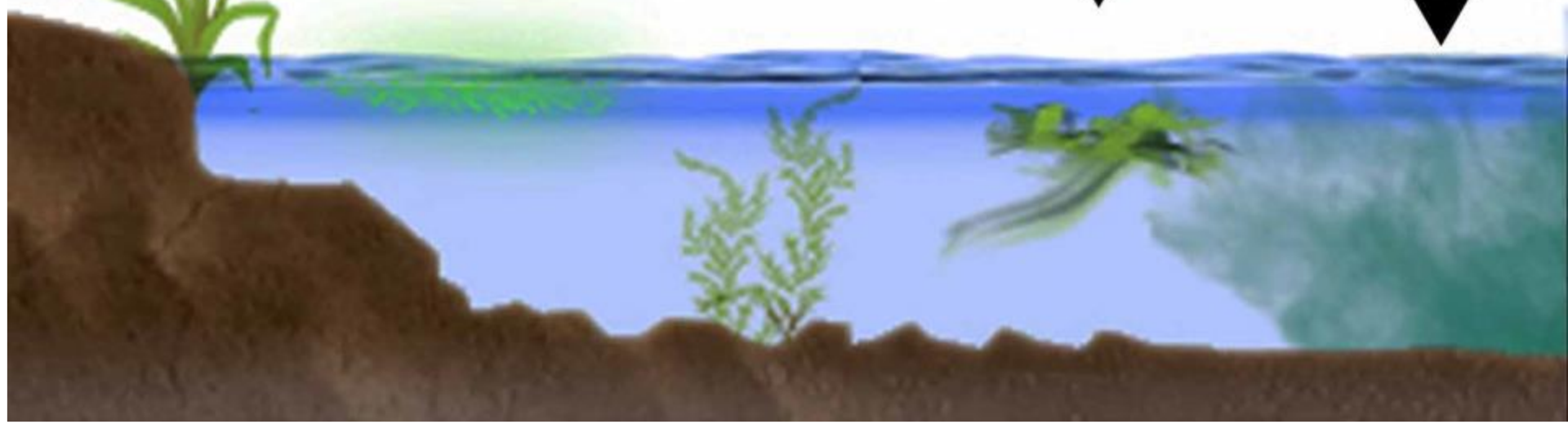
(C)  
Submerged  
Weeds



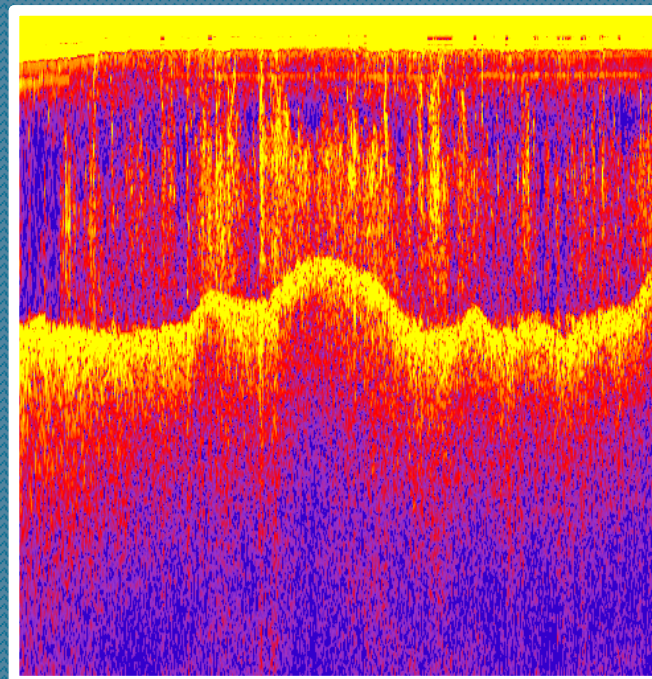
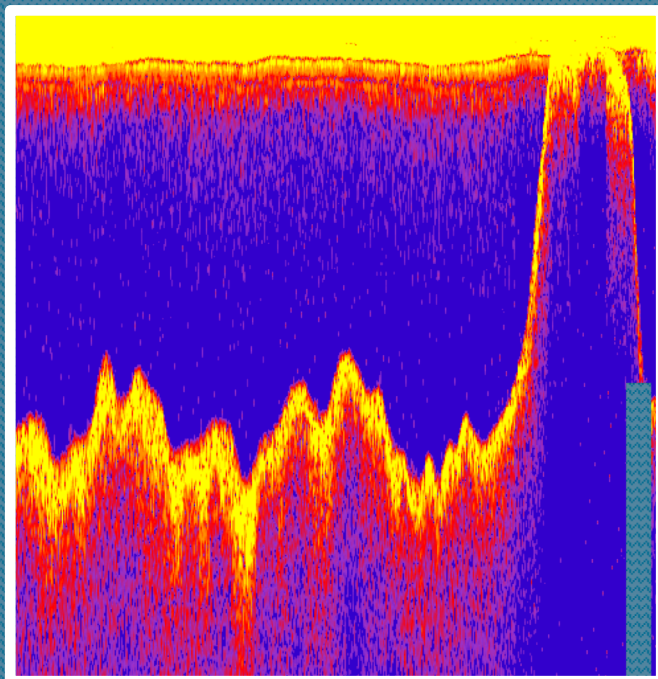
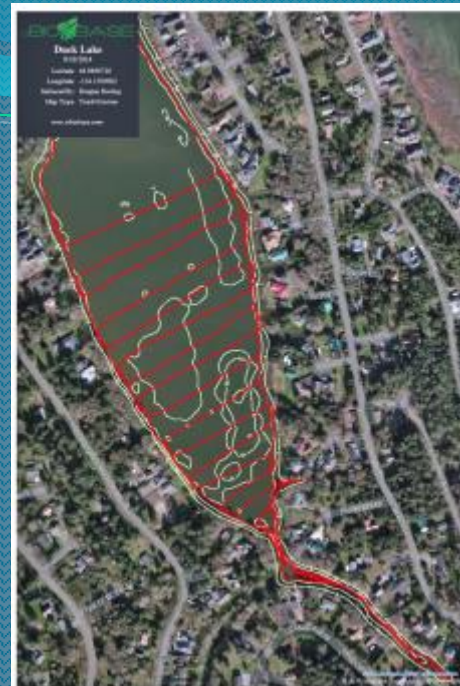
(D)  
Nuisance  
Algae



(E)  
Excess  
Nutrients

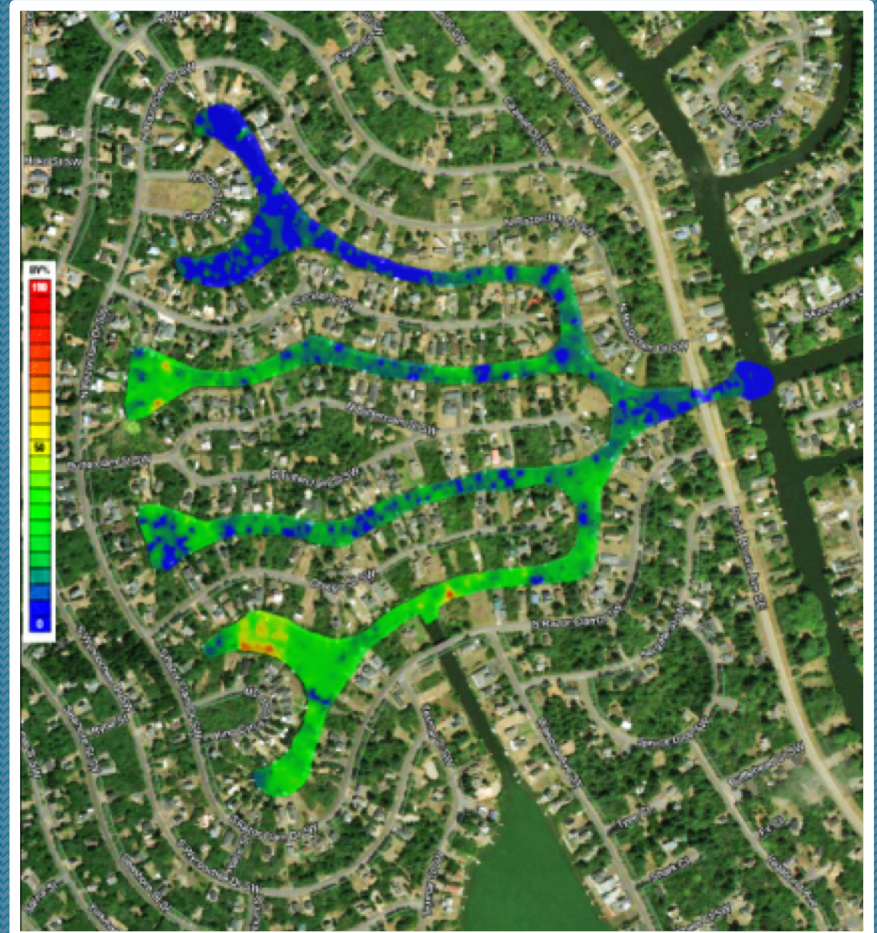


# Survey Technology





2017 Survey



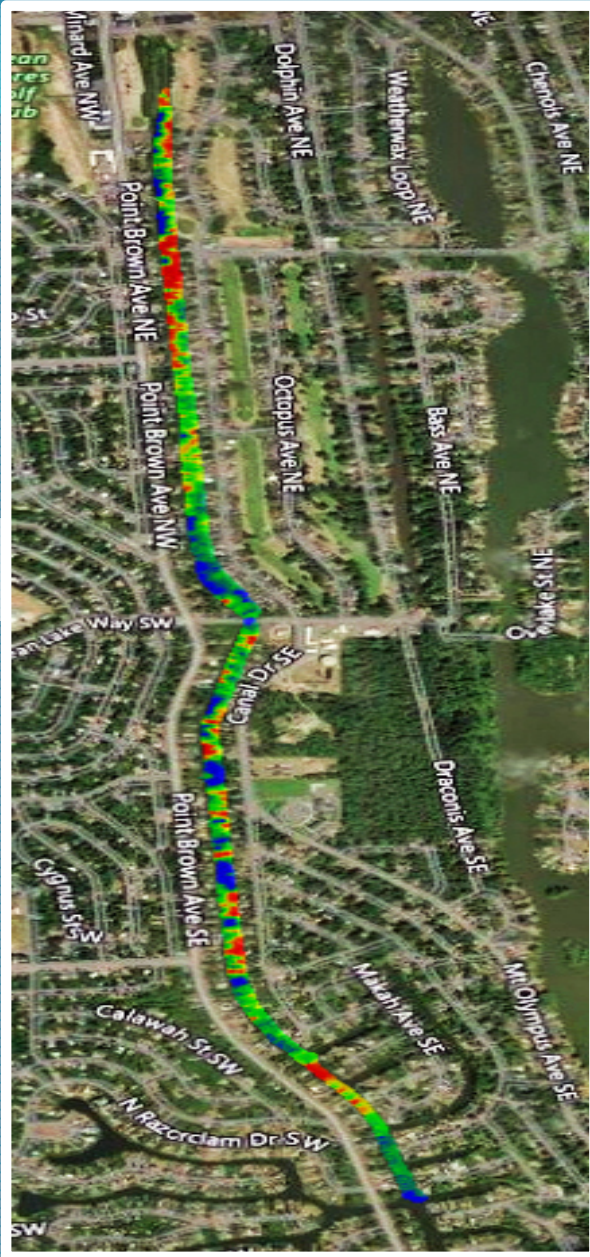
2018 Survey

# Duck Lake

6/16/2018

[www.cibiobase.com](http://www.cibiobase.com)





2017 Survey



2018 Survey







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Pennywort









Naturopathy

## History of Pennywort or Gotu Kola

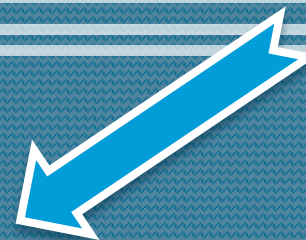
The health benefits of the pennywort plant were acknowledged many centuries ago for the treatment of various conditions. It is used as part of Ayurvedic medicine, especially in traditional Indian and Chinese medicine practices.

Pennywort is a perennial herb that originates in moist areas. It is native to India, Sri Lanka, and Northern Australia as well as a few other areas in Asia.

Pennywort has been associated with a few Asian legends. It is said that a Tai Chi Chuan master, Li Ching-Yun, lived to the age of 256 years due to an assortment of herbs he consumed daily, one being pennywort.

Another tale is of King Aruna and his use of pennywort. He believed it gave him the energy and stamina necessary for his harem of 50 women.

**WOW!!**



# Management Options

## 1. Physical Management Options

Cutting

Digging

## 1. Biological Management Options

None presently exist

## 2. Herbicide Control

Attacks the roots of the plant

Total eradication may destabilize the shoreline



# Parrotfeather

- Class B noxious species
- Asexual reproduction
- Rhizomes
- Waxy surfaces
- Designated for control in areas where species is not widespread





Sept. 4 @ 2pm Microcystins

1. S. Basin  
Lou's cove control

↓

Test line ↗ Negative ⊖

2. S. Basin, East cove  
DeKoven Dr. control

↓

Test line ↗ 5ppb

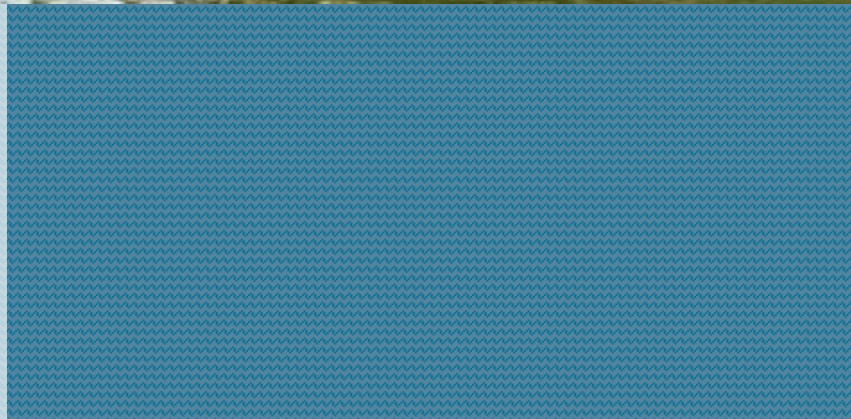
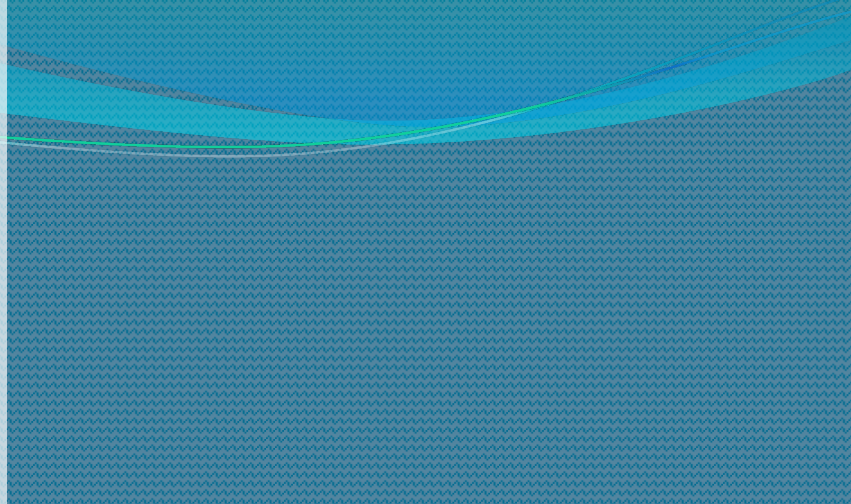
3. S. Basin  
Just S. of Pahl Noges control

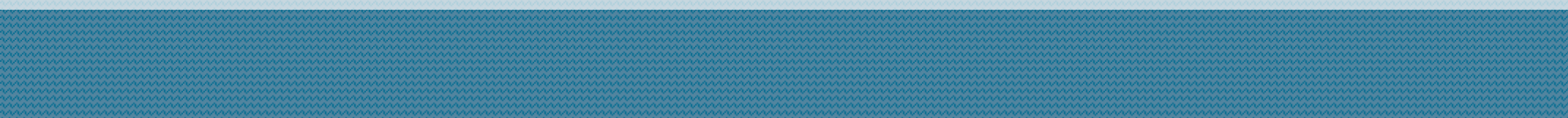
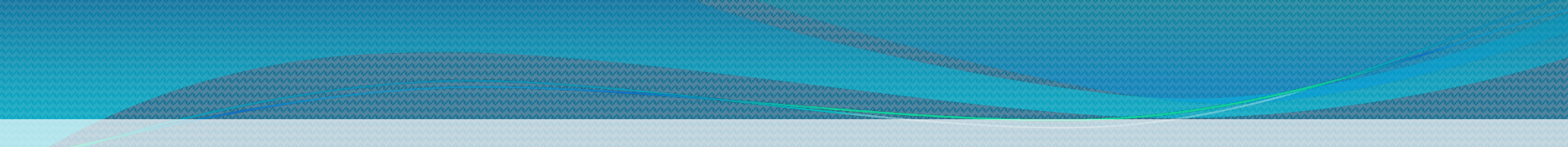
↓

Test line ↗ 10ppb











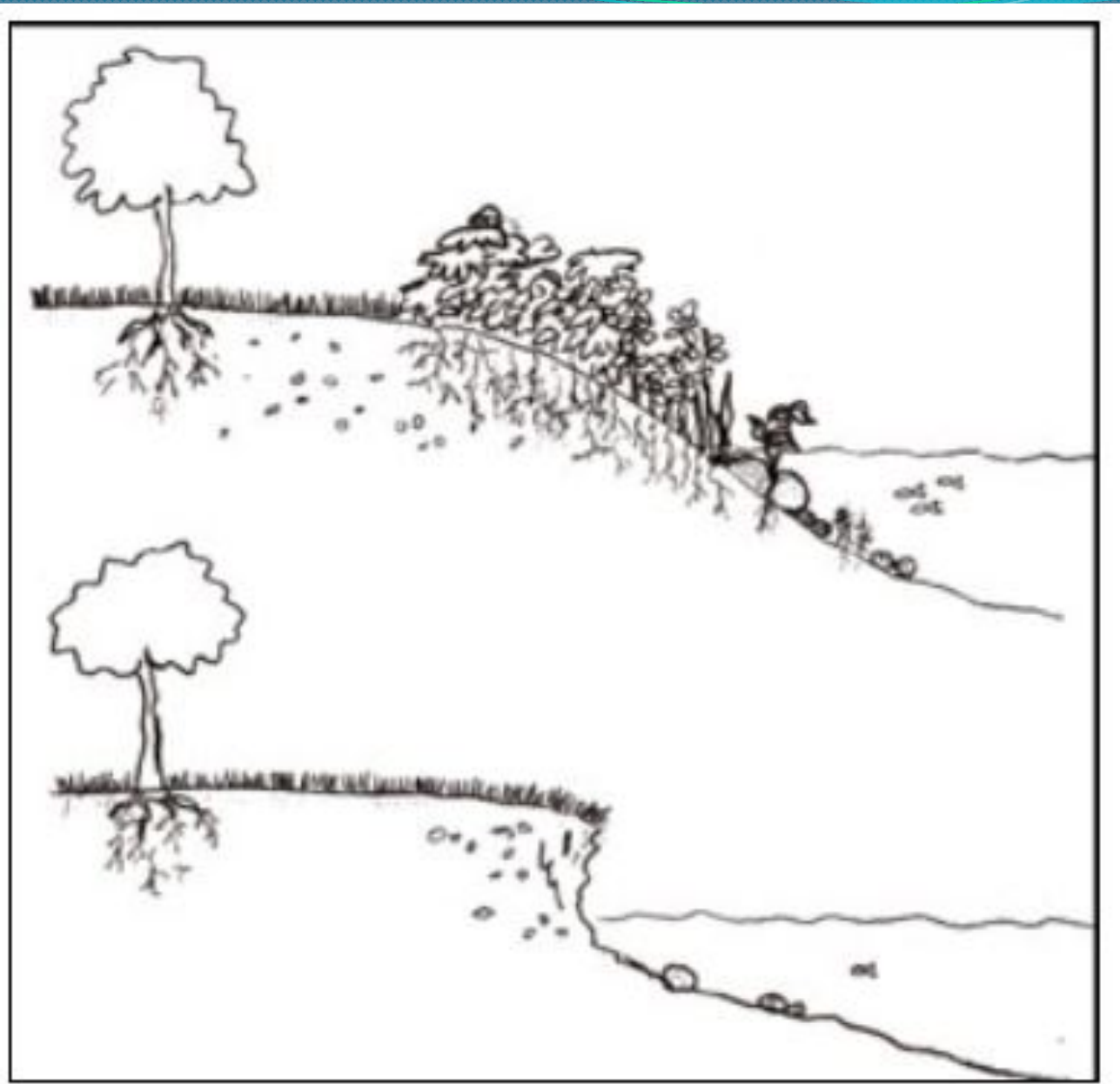
40

Wawana Ave SW

Texmar St SW

# Shoreline Stabilization

1. Soft or natural approaches to shoreline stabilization are recognized as being more environmentally friendly.
1. Planting deep rooted native species increases shoreline stabilization. Many low growing shoreline plants allow for lakefront views and wildlife enjoyment.
1. Natural logs secured with live stakes is also a viable alternative and can be used in conjunction with shoreline plantings.





Mallard Duck - Betty Moulton, Dan Sorenson, Brian C. C. C.



# Diquat Dibromide

1. There are no restrictions for recreational activities (swimming or fishing).
2. The restrictions for portable water (drinking) do not exceed 3 days.
3. Non-food crop irrigation (e.g. turf, ornamentals, etc.) has a maximum of 3 days.
4. Livestock consumption has a maximum of 1 day.
5. Food crop irrigation has a maximum of 5 days.

**Water Use Restrictions Following Applications With Reward Landscape And Aquatic Herbicide (Days)**

Application Rate	Drinking	Fishing and Swimming	Livestock Consumption	Spray Tank Applications** and Irrigation to Turf and Ornamentals	Spray Tank Applications** and Irrigation to Food Crops
2 gals./surface acre	3 days	0	1 day	3 days	5 days
1 gal./surface acre	2 days	0	1 day	2 days	5 days
0.75 gal./surface acre	2 days	0	1 day	2 days	5 days
0.50 gal./surface acre	1 day	0	1 day	1 day	5 days
Spot Spray* (< 0.5 gal./surface acre)	1 day	0	1 day	1 day	5 days

# How Toxic is Diquat?

\*\* Toxicities are measured using the LD50, which is the dose of active ingredient required to kill 50% of test animals. The lower the LD50 the more toxic.

Substance	Oral LD50 (mg/kg)	Use	Notes
Cyanide	1	Rodenticide	
Strychnine	2	Rodenticide	
Nicotine	1-50		
Parathion	6-50	Insecticide	
Verapamil	108	Blood pressure	1 tablet = 120mg. 108mg x 70kg person = 63 tablets 10kg child = 7 tablets
Paraquat	58-150	Herbicide	
Chlorine	150-200	0.5-1.5ppm used in swimming pools.	Intense irritation to humans at 5ppm
Warfarin	185	Rodenticide	
Caffeine	192-355		
Diquat cation	214-420	Herbicide at 1ppm for weed control	Reglone = 20% diquat dibromide diquat dibromide = 54% cation (Toxicity of product = x 10 lower) Safe for skin contact at 30ppm
Asprin	350-1000	Pain killer	1 tablet = 300-500mg. 350 x 10kg child = 12 tablets
Salt	3000	Food additive	3000 x 70kg = 210 gms 70kg person = 1 cup (210gms) 10kg child = 3 Tbsns (30gms)



- Pro-Active vs. Reactive

- Long Term Budget

- Spring Survey

- Communication



- Continued Involvement of Local “Players”

# Early Treatment Advantages

1. Less Biomass
2. More Efficient Herbicide Placement
3. Better Site Access
4. Drift Control





- Establishment of long term yearly budgets
- Continued use of residential comments
- Continue the important working relationships that have developed between all stakeholders

# Where did the rest of the crew go?

