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# How Does Your Garden Grow?

Tuesday, April 14, 2015

Rachel Lord



# Tonight's Agenda!

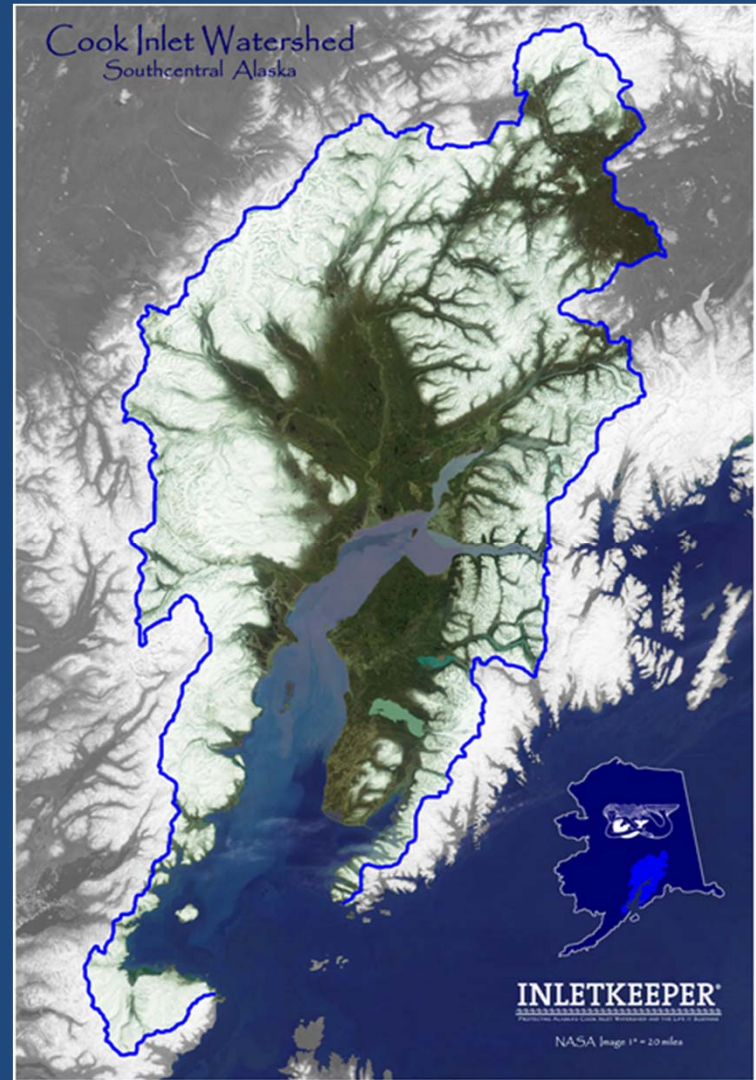
- Inletkeeper overview
- Food security
- Watershed-friendly gardens
- Water quality & irrigation
- G.A.P. (not the store)
- Head to the lab for soil testing!







# Cook Inletkeeper





# Cook Inletkeeper



Clean water

Healthy salmon

Engaged Alaskans

Clean energy

Strong communities





# Gardening?





# Food Security



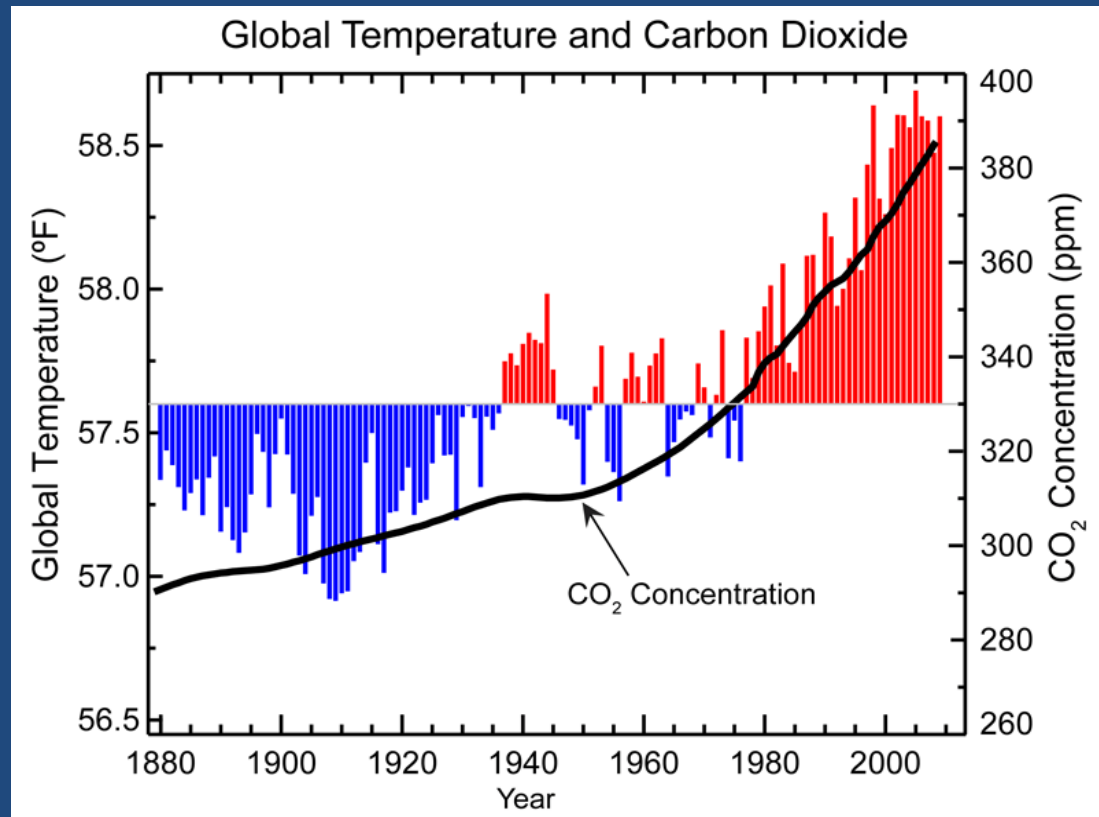
95% of our food is imported!

= \$1.9 billion spent on food from Outside



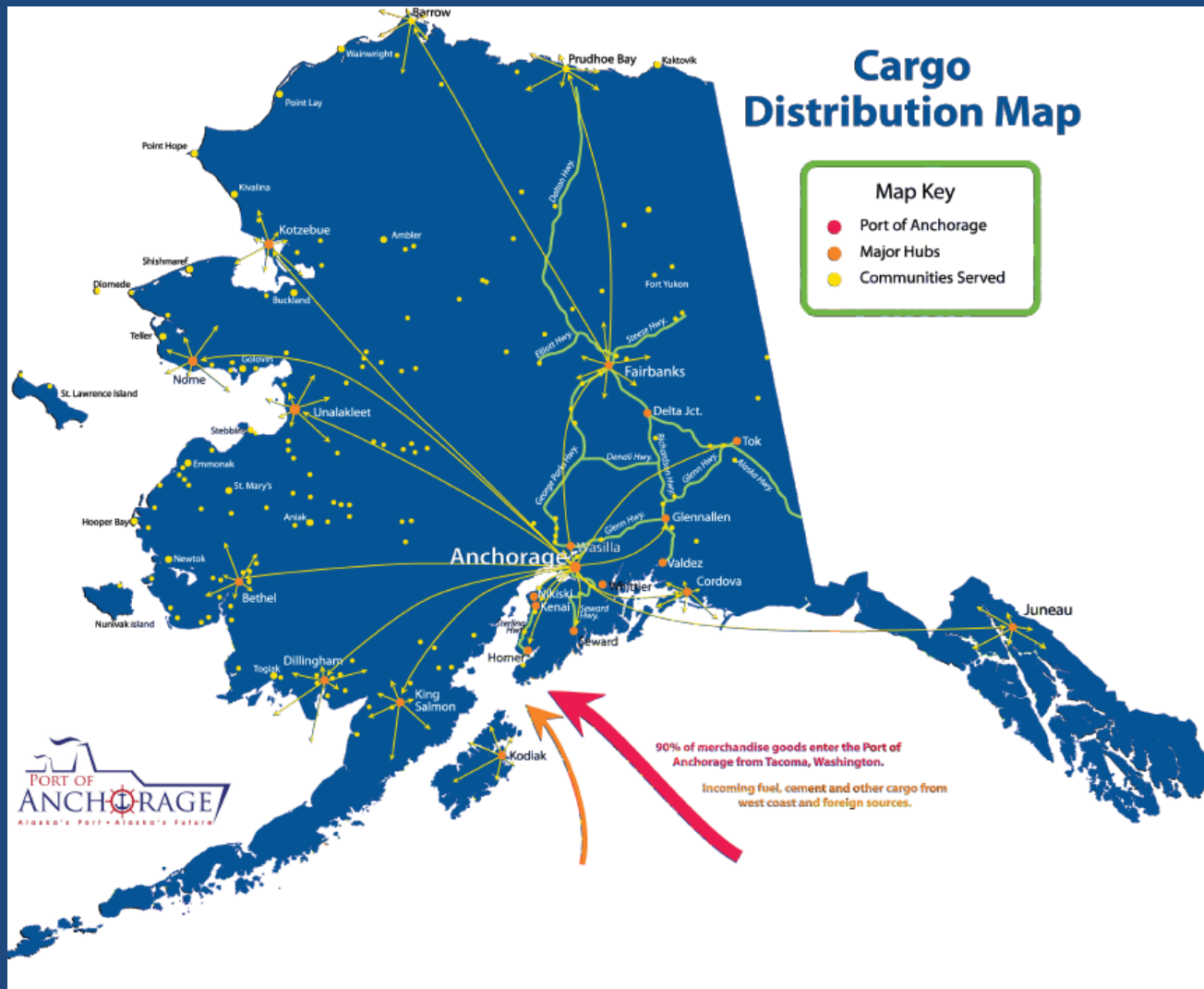


# Climate Change





# Food Miles



Direct farmer sales rose 32% in Alaska between 2007-2012!

Over \$4million in high tunnel grants from USDA to Alaskans





# Your Garden





# Revolution!





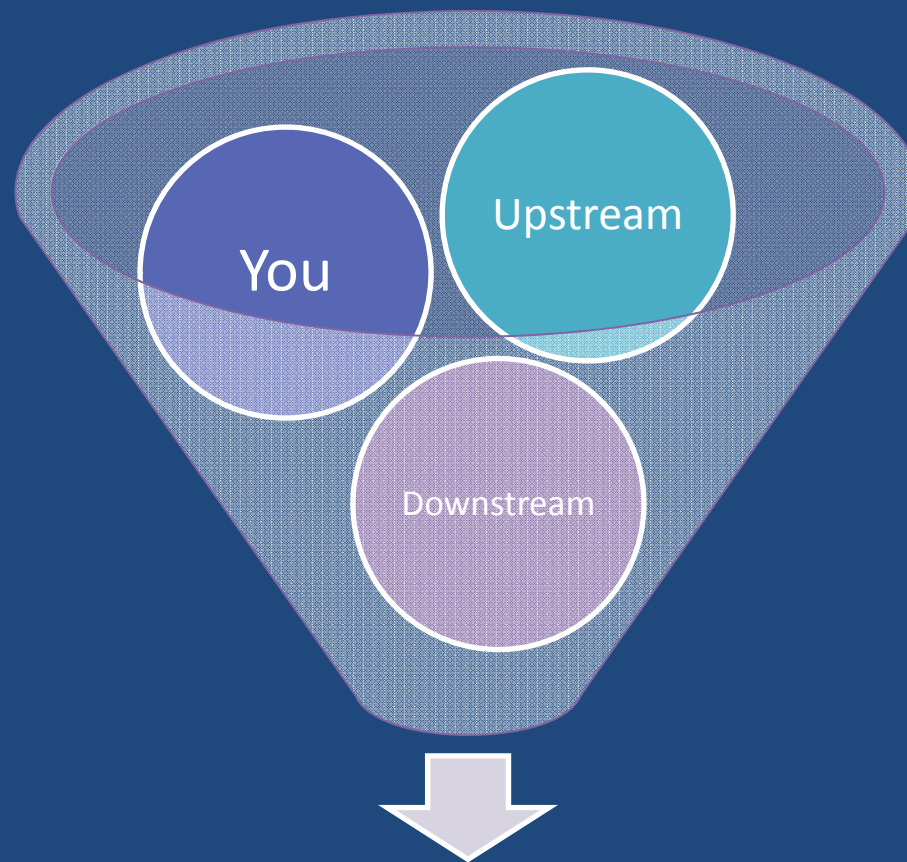


# Watersheds





# Watersheds



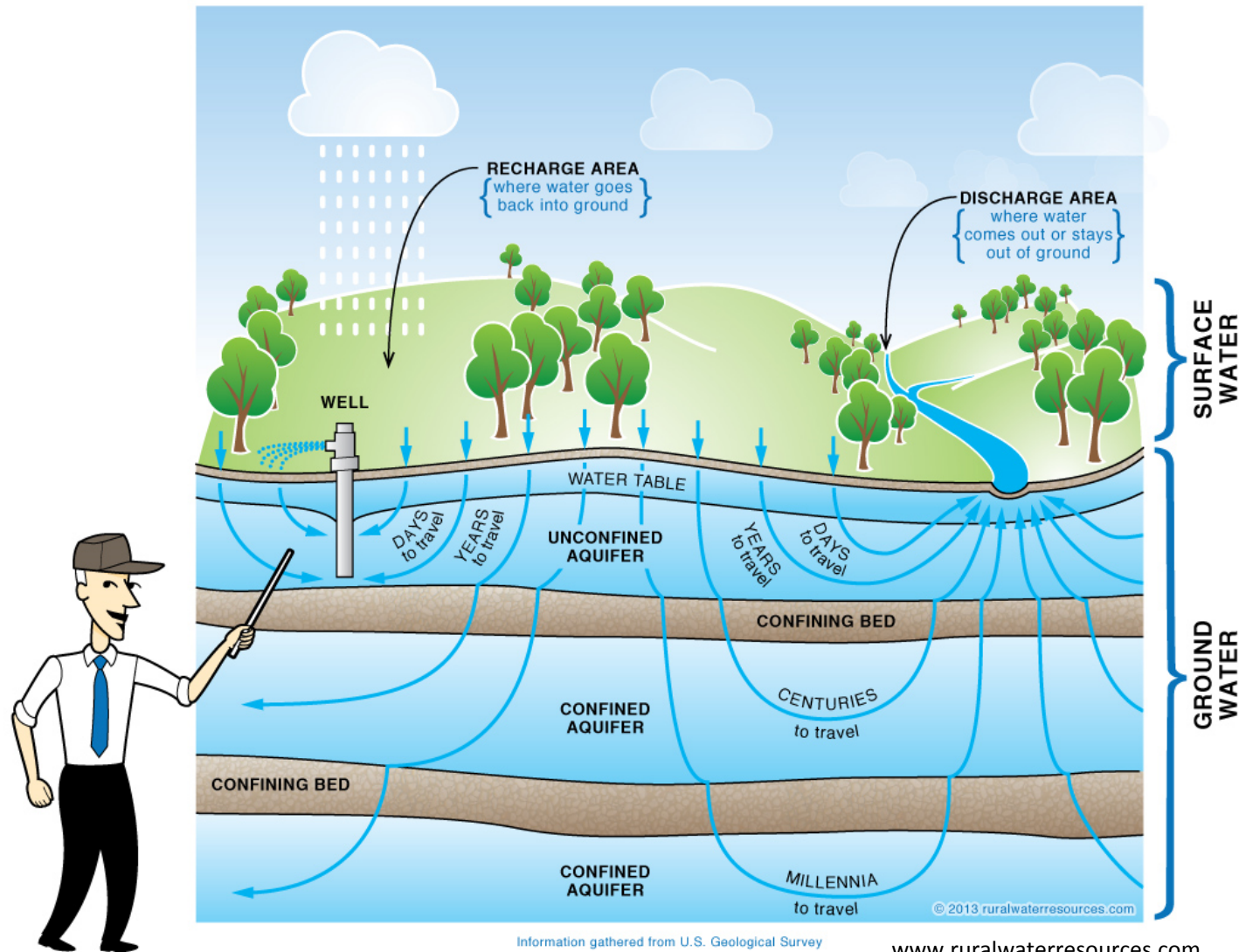
Watershed Water Quality





# Groundwater vs. Surface Water

## Ground versus Surface Water

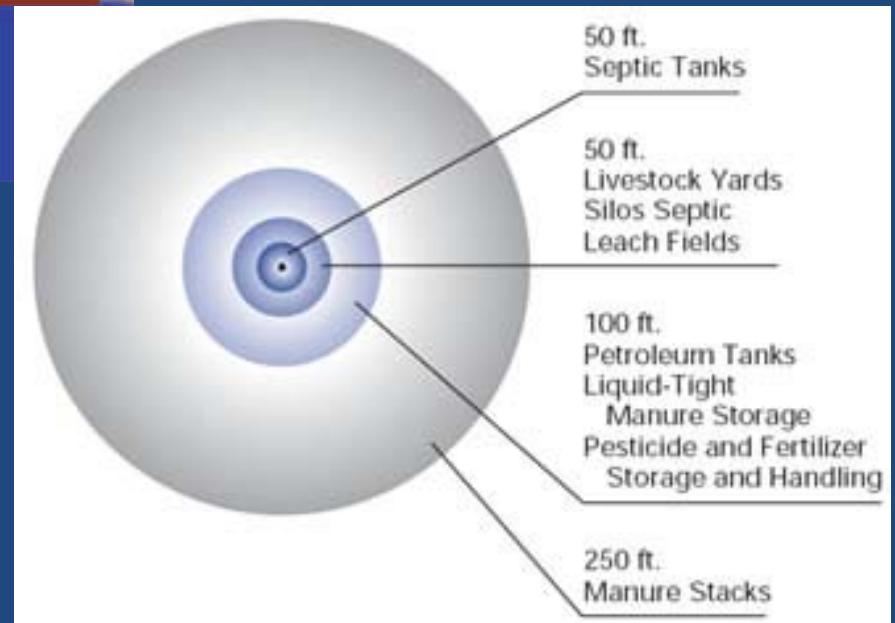
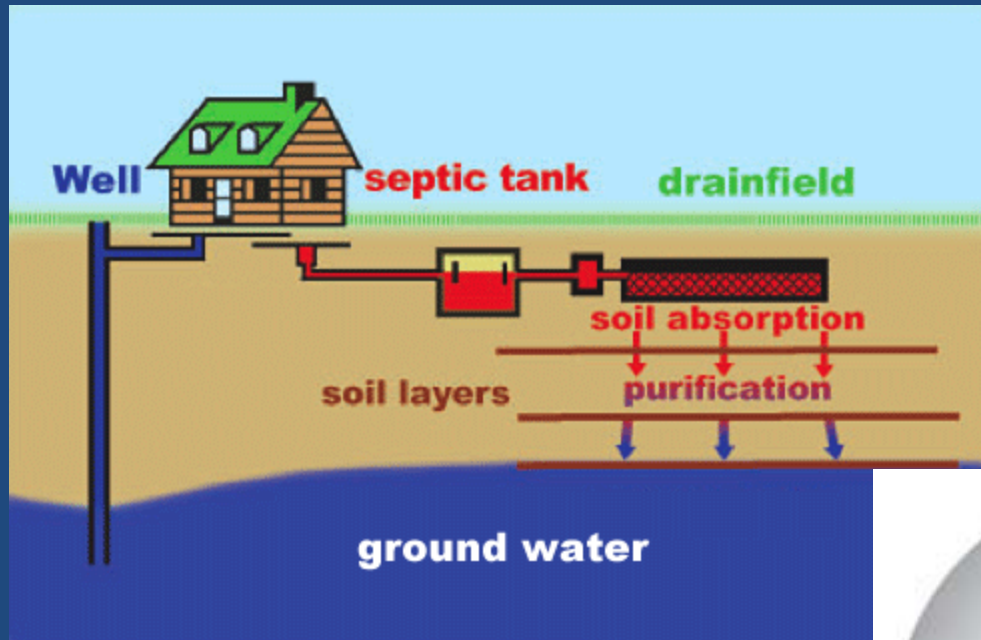


Information gathered from U.S. Geological Survey

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



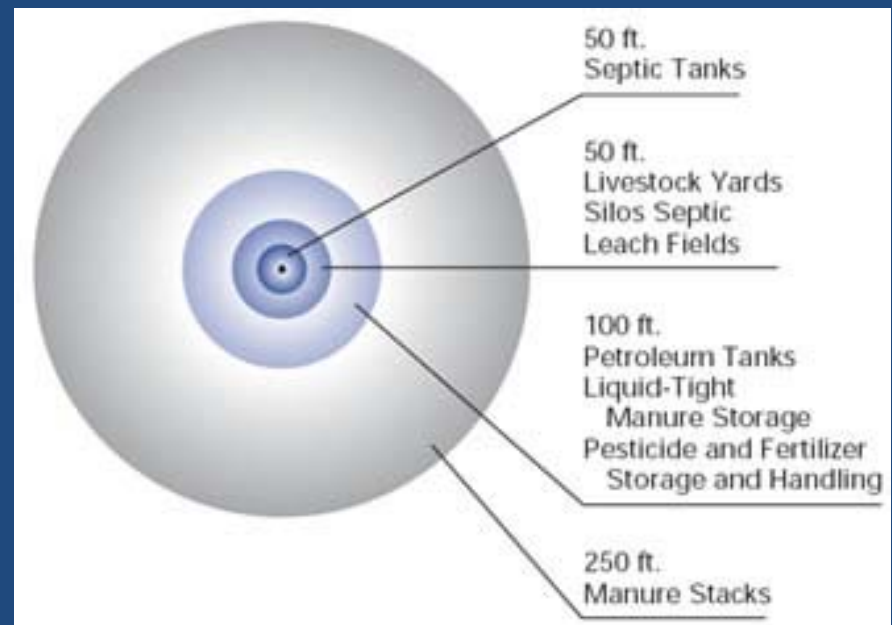
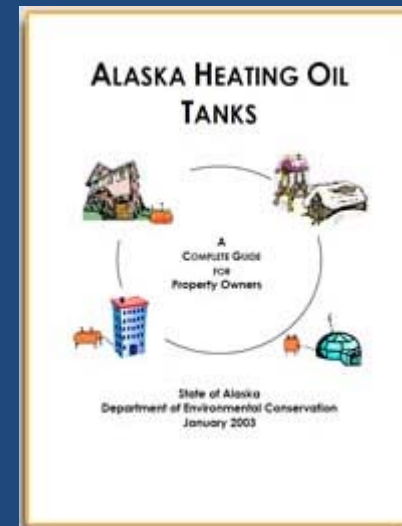
# Septic Systems





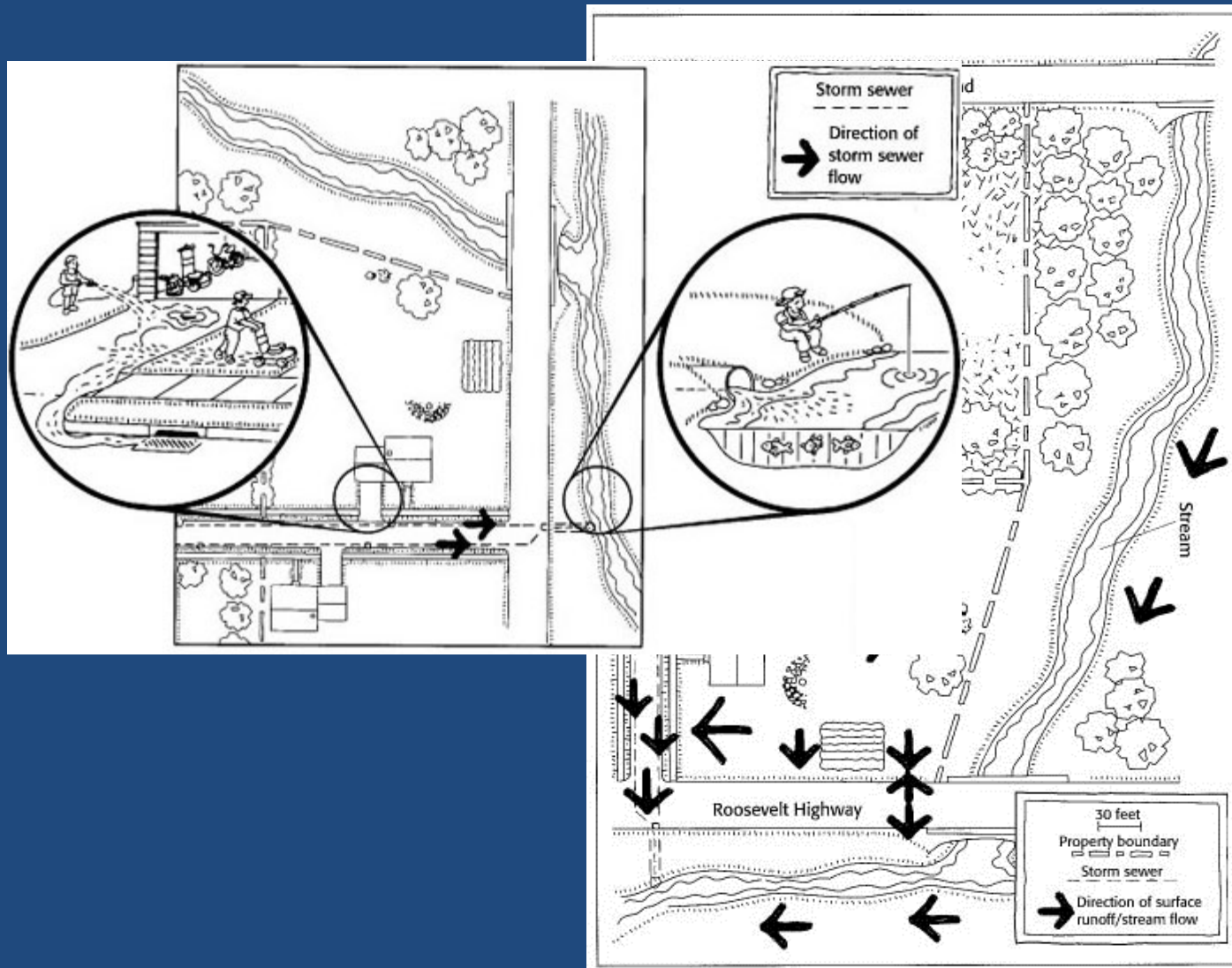


# Fuel Tanks





# Stormwater







# Fertilizers/Pesticides

10-30%

Efficiency increases can be achieved from the precise management of fertilizer use

Right Source



Right Rate



Right Time



Right Place



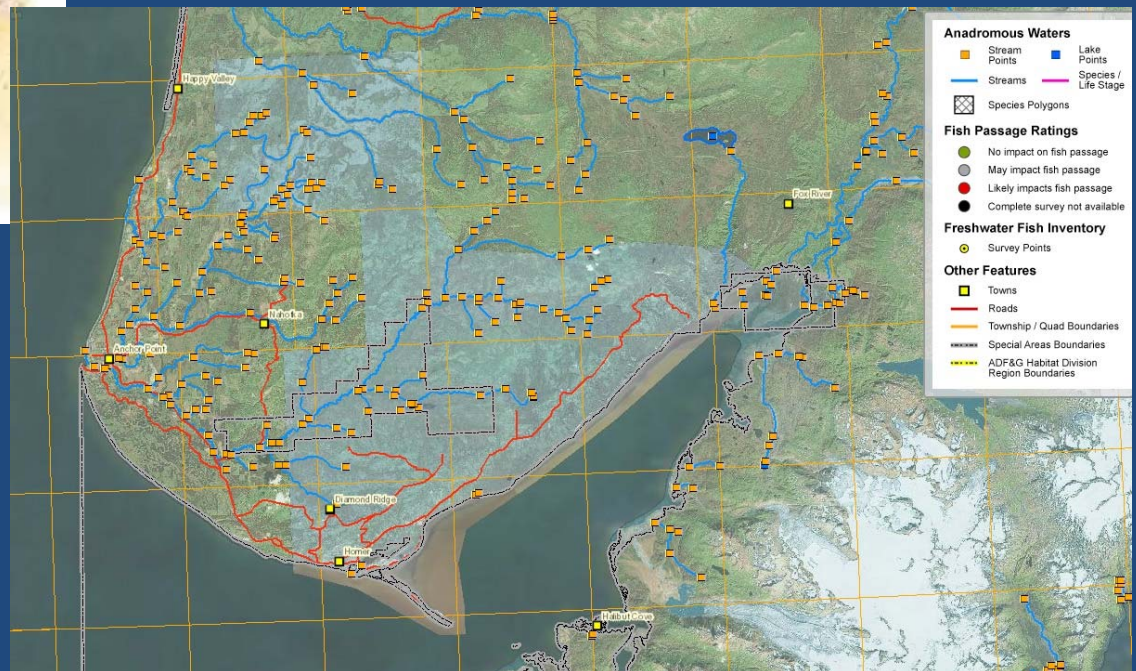


# Riparian Zones



50' Habitat Protection District in the KPB

ADF&G Anadromous Waters Catalog  
[www.adfg.alaska.gov/sf/SARR/AWC](http://www.adfg.alaska.gov/sf/SARR/AWC)







# Water Quality Testing

- Water source
- Treatment?
- Parameters
- Cost & Quality





# G.A.P.

## Good Agricultural Practices



### Good Agricultural Practices

A Self-Audit for Growers and Handlers



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Audit questions designated by \* are the most vital GAP considerations. Compliance with these issues is absolutely essential in controlling microbial risk, or to comply with Federal, State and local laws and codes.





# Irrigation





# Irrigation



[Extension.psu.edu](http://Extension.psu.edu)





# Water Rights

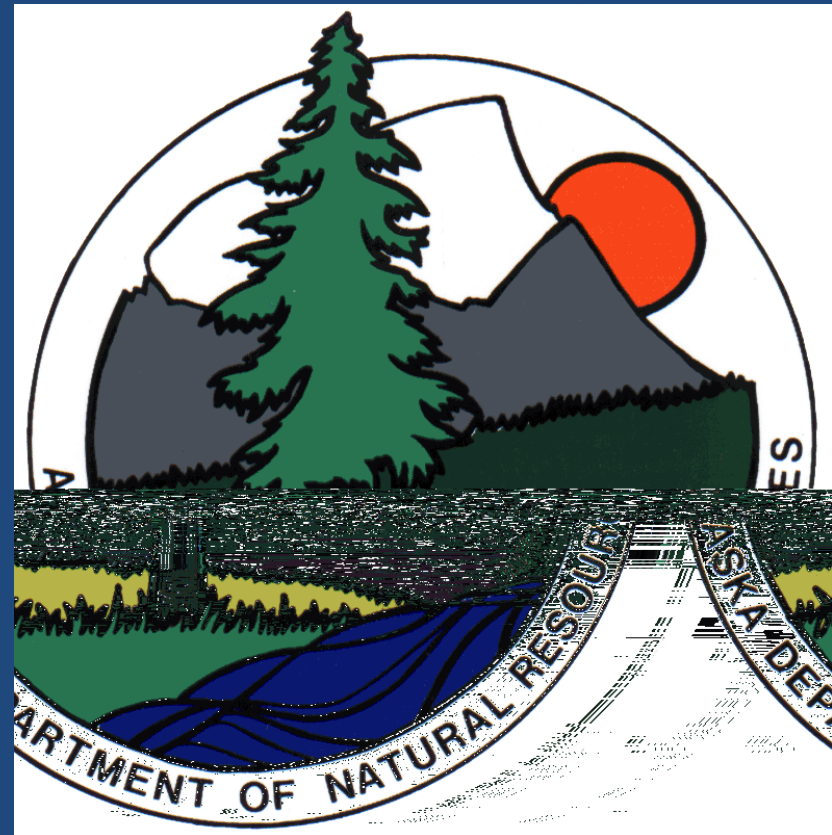
Alaska DNR

Water is a **common property resource** in Alaska

The legal right to use surface or ground water

Stays with the land!

“Significant” amount of water





# Invasive Species

## Plant Alternatives for Alaskan Gardens

Avoid Planting These Invasive Plants → Replace With These Plant Alternatives



Purple Loosestrife  
(*Lythrum salicaria*)  
Replace with Lupine



Garlic Mustard  
(*Alliaria petiolata*)  
Replace with Brook Saxifrage



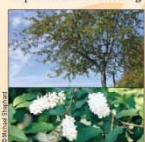
Orange Hawkweed  
(*Hieracium aurantiacum*)  
Replace with Pot Marigold



Common Tansy  
(*Tanacetum vulgare*)  
Replace with Beach Fleabane



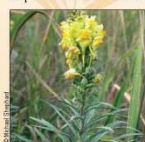
Ornamental Jewweed  
(*Impatiens glandulifera*)  
Replace with Queen of the Prairie



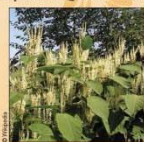
European Bird Cherry  
(*Prunus padus*)  
Replace with Ussurian Pear



Ornamental Ribbongrass  
(*Phalaris arundinaceae* 'Picta')  
Replace with Feather Reed Grass



Common Toadflax  
(*Linaria vulgaris*)  
Replace with Yellow Monkshood



Japanese Knotweed  
(*Fallopia japonica*)  
Replace with Bride's Feathers



Oxeye Daisy  
(*Leucanthemum vulgare*)  
Replace with Shasta Daisy



Rampion Bellflower  
(*Campanula rapunculoides*)  
Replace with Peach Leaved Bellflower



Bird Vetch  
(*Vicia cracca*)  
Replace with Eskimo Potato



White Sweetclover  
(*Melilotus alba*)  
Replace with Fireweed



Creeping Charlie  
(*Glechoma hederacea*)  
Replace with Bugleweed

Invasive plants have the ability to thrive and spread aggressively outside their natural range, without insects, diseases, and foraging animals that naturally keep its growth in check.

Invasive plants can disrupt ecosystem processes and ultimately impact natural and agricultural resources. Not all non-native plants become invasive, so it is important to know what you're planting!



Lupine  
(*Lupinus nootkatensis* or *L. arcticus*)  
Avoid "Bigleaf" Lupine



Brook Saxifrage  
(*Saxifraga punctata*)



Pot Marigold  
(*Calendula officinalis*)



Beach Fleabane  
(*Senecio pseudonarnica*)



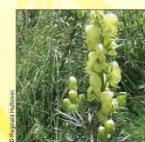
Queen of the Prairie  
(*Filipendula rubra*)



Ussurian Pear  
(*Pyrus ussuriensis*)



Feather Reed Grass  
(*Calamagrostis acutiflora*)



Yellow Monkshood  
(*Aconitum anthora*)



Bride's Feathers  
(*Aruncus dioica*)



Shasta Daisy  
(*Leucanthemum maximum*)



Peach Leaved Bellflower  
(*Campanula persicifolia*)



Eskimo Potato  
(*Hedysarum alpinum*)



Bride's Feathers  
(*Aruncus dioica*)



Shasta Daisy  
(*Leucanthemum maximum*)



Peach Leaved Bellflower  
(*Campanula persicifolia*)



Eskimo Potato  
(*Hedysarum alpinum*)

For more information on invasive plants visit  
[www.plants.alaska.gov/invasives/index.htm](http://www.plants.alaska.gov/invasives/index.htm)  
or for help identifying what is in your garden, contact:  
UAF Cooperative Extension Service:  
[www.uaf.edu/ces/pests](http://www.uaf.edu/ces/pests) • 1 (877) 520-5211 or the  
State of Alaska - Division of Agriculture,  
Plant Materials Center • (907) 745-4469



Printed by the Plant Materials Center, January 2014



\*Fireweed  
(*Chamerion angustifolium*)



\*Bugleweed  
(*Ajuga reptans*)

\*These alternatives can grow rapidly. Keep plant's roots from spreading by planting in pots or using edging.





# Invasive Species

## Prevention & Education Training **FREE!**

April 24, 2015  
1-4:30PM

Kenai Peninsula Cooperative Weed Management Area, Homer SWCD, Kachemak Bay Research Reserve

[www.kenaiweeds.org](http://www.kenaiweeds.org) or call 235-8711 x5





# Questions?





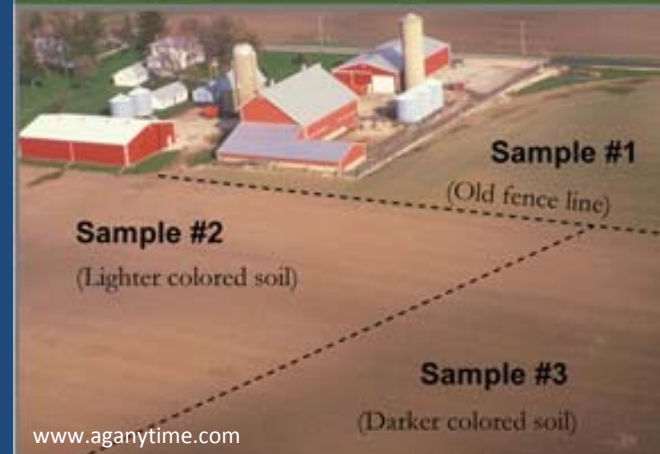


# Soil Testing: Overview

- Timing matters
- Sampling methods matter
- Sending off samples
- Cooperative Extension guidance!
- Hanna Meter Overview



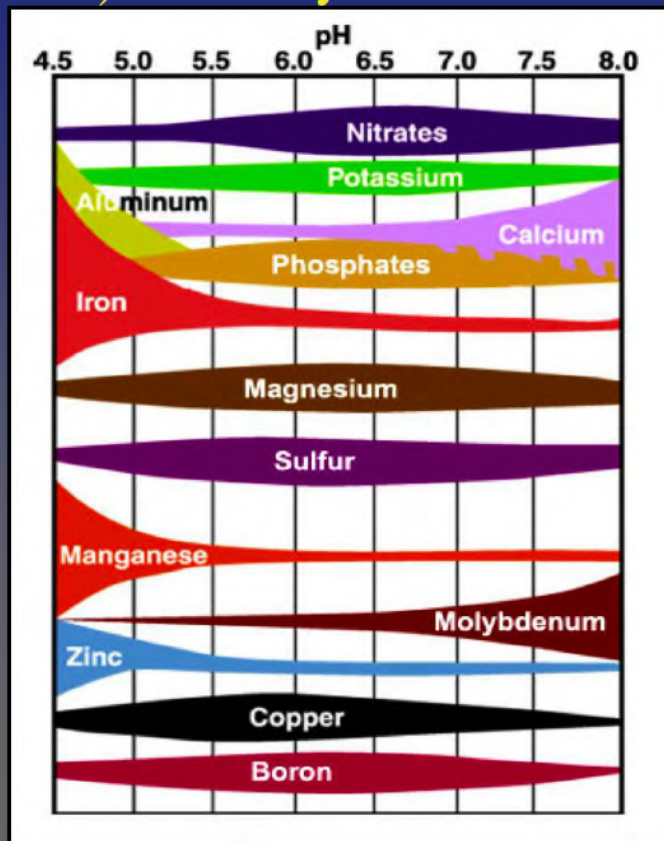
Figure 1. Sampling areas based on variation across the field as indicated by differences in soil type and an old fence line.





# pH

Soil pH influences plant growth in three major ways:



- affects the availability of plant nutrients
- affects the activity of soil microbes
- affects the availability of soil metals that can be toxic to plants in high concentrations





# Conductance

Saturation extract (mmhos/cm)	Salt Rank	Interpretation and possible effects
0-2	Low	<i>Very little chance of injury on all plants</i>
2-4	Moderate	<i>Sensitive plants and seedlings of others may show injury</i>
4-8	High	<i>Most non-salt tolerant plants will show injury; salt sensitive plants like carrots, beans and seedlings will show severe injury</i>
8-16	Excessive	<i>Salt-tolerant plants will grow; most others show severe injury</i>
16+	Very Excessive	<i>Very few plants will tolerate and grow</i>

Hanna meters read in uS/cm. To convert, divide by 1000.  
EXAMPLE: 589 uS/cm = .586 mmhos/cm or .586 dS/m



# Resources

**Brookside Laboratories** ([www.blinc.com/soils.htm](http://www.blinc.com/soils.htm), 419.977.2766)

**Alaska Cooperative Extension** (Janice Chumley) ([www.uaf.edu/ces/districts/kenai/](http://www.uaf.edu/ces/districts/kenai/), 907.262.5824)

**Homer Soil & Water Conservation District** ([www.homerswcd.org](http://www.homerswcd.org), 235.8177 x5)

**Natural Resources Conservation Service** (NRCS Homer Office) 235.8177 x107

**NRCS Web Soil Survey** ([websoilsurvey.sc.egov.usda.gov/](http://websoilsurvey.sc.egov.usda.gov/))

**KPB GIS Parcel Viewer** ([mapserver.borough.kenai.ak.us/kpbmapviewer](http://mapserver.borough.kenai.ak.us/kpbmapviewer))

**ADF&G Anadromous Waters Catalog** ([www.adfg.alaska.gov/sf/SARR/AWC](http://www.adfg.alaska.gov/sf/SARR/AWC))

**ADNR Water Rights in Alaska** ([dnr.alaska.gov/mlw/water/wrfact.cfm](http://dnr.alaska.gov/mlw/water/wrfact.cfm))

**Water Testing** ([inletkeeper.org/clean-water/safe-drinking-water/get-your-water-tested](http://inletkeeper.org/clean-water/safe-drinking-water/get-your-water-tested))

**Cook Inletkeeper** ([www.inletkeeper.org](http://www.inletkeeper.org))

**Homer Farmers Market** ([www.homerfarmersmarket.org](http://www.homerfarmersmarket.org))

**Sustainable Homer** ([www.sustainablehomer.org](http://www.sustainablehomer.org))

**Alaska Marine Conservation Council** ([www.akmarine.org](http://www.akmarine.org))