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

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

Global Temperature and Carbon Dioxide

<table>
<thead>
<tr>
<th>Year</th>
<th>Global Temperature (°F)</th>
<th>CO₂ Concentration (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880</td>
<td>56.5</td>
<td>260</td>
</tr>
<tr>
<td>1900</td>
<td>57.0</td>
<td>300</td>
</tr>
<tr>
<td>1920</td>
<td>57.5</td>
<td>320</td>
</tr>
<tr>
<td>1940</td>
<td>58.0</td>
<td>340</td>
</tr>
<tr>
<td>1960</td>
<td>58.5</td>
<td>360</td>
</tr>
<tr>
<td>1980</td>
<td>58.5</td>
<td>380</td>
</tr>
<tr>
<td>2000</td>
<td>58.5</td>
<td>400</td>
</tr>
</tbody>
</table>

CO₂ Concentration
Direct farmer sales rose 32% in Alaska between 2007-2012!

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

- Seeds
- Care
- Weather
- Planning
- Food!
- Storage
- Soil
- Water
Revolution!
Watersheds
Groundwater vs. Surface Water
Septic Systems

[Diagram showing the components of a septic system, including a house, septic tank, drainfield, soil layers, soil absorption, purification, and groundwater.]
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
Water Quality Testing

- Water source
- Treatment?
- Parameters
- Cost & Quality
Good Agricultural Practices

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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
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

- Purple Loosestrife
- Garlic Mustard
- Orange Hawkweed
- Common Teary
- Ornamental Ornamental
- European Birch Cherry
- Ornamental Ribbitgrass
- Common Toadflax
- Japanese Knotweed
- Queen of the Prairie
- Invasive Plant
- White Sweetclover
- Creeping Charlie Replacement

Replace With These Plant Alternatives

- Leatherleaf Sedge
- Purple Morning-glory (Ipomoea purpurea)
- Common Toadflax
- Common Teary
- Ornamental Ornamental
- Queen of the Prairie
- White Sweetclover
- Creeping Charlie

Invasive plants have the ability to thrive and spread aggressively outside their native range, without insects, diseases, and having animals that normally keep it in check. Invasive plants can alter ecosystem processes and ultimately impact natural and agricultural resources. Therefore, it is important to know what you're planting!
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 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.

Sample #1
(Old fence line)

Sample #2
(Lighter colored soil)

Sample #3
(Darker colored soil)
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

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

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, 419.977.2766)

Alaska Cooperative Extension (Janice Chumley) (www.uaf.edu/ces/districts/kenai/, 907.262.5824)

Homer Soil & Water Conservation District (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/)

KPB GIS Parcel Viewer (mapserver.borough.kenai.ak.us/kpbmapviewer)

ADFG Anadromous Waters Catalog (www.adfg.alaska.gov/sf/SARR/AWC)

ADNR Water Rights in Alaska (dnr.alaska.gov/mlw/water/wrfact.cfm)

Water Testing (inletkeeper.org/clean-water/safe-drinking-water/get-your-water-tested)

Cook Inletkeeper (www.inletkeeper.org)

Homer Farmers Market (www.homerfarmersmarket.org)

Sustainable Homer (www.sustainablehomer.org)

Alaska Marine Conservation Council (www.akmarine.org)