Note, 9.22.14:
Responses in this session were collected in real time using Key Points audience response technology on 9/18 from an audience of about 40 individuals with responses to individual questions ranging from 20-35+ people. These insights will help guide the ABCVA team as they look to make prioritized recommendations to the leadership of the sponsoring organizations.

Unalaska Lecture & Community Discussion - September 2014

More at: https://absilcc.org
Who we are

Aaron Poe
US Fish and Wildlife Service, Aleutian Bering Sea Islands Landscape Conservation Cooperative

Ellen Tyler - Alaska Ocean Observing System

Nick Bond – University of Washington

Steve Gray
Alaska Climate Science Center

Chris Beck & Meghan Holtan
Agnew::Beck Consulting (facilitators)
Origin of this Project: The Aleutian and Bering Climate Vulnerability Assessment

• **Which?** Identify resources or ecosystems expected to be most affected by climate change (*what, where, when?*)

• **Why?** Understand the forces – the “environmental stressors” – driving resource change, including interactions among stressors

• **Impacts?** Potential vulnerability
  – Frequency of exposure to adverse changes
  – Magnitude of risk to services & resources
  – Adaptive capacity of managers & stakeholders

• **Information Needs?** Identify priority research recommendations

• **Options to Adapt?** Begin a dialog about potential adaptation strategies in the region.

*NWF 2011 publication: Scanning the Conservation Horizon: A guide to Climate Change Vulnerability Assessment*
Purpose of the Meeting

– Start a dialogue on climate change impacts between communities and researchers
– Listen and take advantage of what local residents are observing about changes in the local environment
– Share and discuss emerging research results
– Prioritize future research

What have you noticed?
Where should we direct research?
Agenda

Introductions

Topic #1 Physical Changes in the Local Environment – “Environmental Drivers”
Audience Polling; Discussion

Topic #2 Changes in Marine Life + Coastal Sea Life
Audience Polling; Discussion

Topic #3 Impacts to People+ Communities
Audience Polling; Discussion

Topic #4, Greatest Concerns, Adaptation, Research Priorities

Next steps

We ask:
• “Tolerance for imprecision”
• Big picture thinking
• Help getting through a full agenda
Why are your views critical?

• The global climate is changing.
• Observed changes in Alaska are some of the most rapid in the world.
• Climate change could affect local communities in profound ways, some good, some bad, many unknown.
• Our job is to direct publically funded research to benefit landscapes and the people who live in them. We need your help.
Topic # 1
Physical Changes in the Local Environment
I don't care what they say. This global warming scare is just a bunch of loony left-wing environmental anti-growth hype!

So is this your first winter here at Dutch Harbor?
Climate Models

• Simulations from global climate models are being used to anticipate the **likely** impacts of climate change at the regional level

• Present climate models are far from perfect, but are still the best tool we have for projecting future conditions
Progress in Climate Modeling

1990 FAR

“Swamp” Ocean

2007 AR4

Interactive Vegetation

Chemistry

FAR

~500 km (T21)

AR4

~110 km (T106)

IPCC 2007
Please pull out your clicker and wait for instructions!
How to Use the Clickers

1. When submitting responses, please point your clicker at the laptop.
2. After entering your response, hit “Send.”
3. If the question asks for more than one response, hit send after each response.
4. Raise your hand if you have questions.

= slide has a question for the audience
Warm-up

What color socks are you wearing?

1. White
2. Brown
3. Black
4. Other color
5. A multi colored pattern
6. I am not wearing socks
Sock Colors in the Room

- White: 25%
- Brown: 5%
- Black: 25%
- Other color: 23%
- A multi colored pattern: 13%
- I am not wearing socks: 10%
How Long have You Lived in Unalaska?

1. Less than one year
2. One to five years
3. Five to ten years
4. Ten to 20 years
5. More than 20 years
Length of time in Unalaska

- Less than one year: 38%
- One to five years: 10%
- Five to ten years: 13%
- Ten to 20 years: 13%
- More than 20 years: 26%
To what extent do you agree or disagree with the following statement:

Variability in weather and other physical processes naturally occur. However, over the last ten to twenty years, I have been seeing changes or have heard of changes in the local environment that seem to go beyond the normal range.

1. Strongly agree
2. Somewhat agree
3. Unsure/Don’t know
4. Somewhat disagree
5. Disagree strongly
Changes are occurring in the local environment beyond the normal range.
Part 1 - Physical Changes

Storminess + wind
Sea ice
“Cold pool”
Ocean temperature
Air temperature
Future Climate of the Aleutians and Bering Sea

• Projected changes in mean climate
• Estimates of changes in extremes
Downscaling of global climate models
by SNAP (Scenarios Network for Alaska and Arctic Planning)

- A set of 20+ models were compared with data (1958-2000) for surface air temperature, sea level pressure, and precipitation
- Models that perform best over Alaska have been selected
Decadal temperature and precipitation, **A2 scenario**: Attu, AK

**Temperature**
Expected to increase

**Precipitation**
Expected to increase
Episodic Events: # of days with average temperature > 12ºC
Bering Sea, Jun-Aug 1981-2099, 3 models (RCP 8.5)
-- large increase in summer days warmer than 54ºF
Sample plots: # of days with average windspeed >10.8 m/sec
Adak, Jul-Sep 1981-2099, 3 models (RCP 8.5)

--- slight increase in summer storminess

Adak Station RCP 8.5 extreme Wind events by model

1981 2040 2099
Sample plots: # of days with average temperature < -4°C
Bering Sea, Jan-Feb 1981-2099, 3 models (RCP 8.5)
-- large decrease in winter days colder than 25°F
Sample plots: # of days with average windspeed >10.8 m/sec
Bering Sea, Jan-Feb 1981-2099, 3 models (RCP 8.5)

-- slight decrease in winter storminess

Bering Sea RCP 8.5 extreme Wind events by model

1981 2040 2099
Present maximum sea ice
Projected future maximum sea ice area fraction.

The modeled fraction of ice averaged over time.
Different models, different results

Surface Temperature Changes (August) from Present to 2030s

Al Hermann, UW

CCCMA

MIROC
Different models, different results – but a common trend.
Clicker Time!

Part 1 of 4 – Changes in the Physical Environment; “Environmental Drivers”
Increased storminess and shifting wind patterns

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I have noticed important changes in storminess and shifting wind patterns other than increases.
6. I don’t know
Increased storminess and shifting wind patterns

I have definitely noticed this change.
I have noticed this happening to some extent.
I have heard others talking about this change, but I haven’t noticed it myself.
I have not noticed this change.
I have noticed important changes in storminess and shifting wind patterns other than increases.
I don’t know
Increased Precipitation

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I have noticed important changes in precipitation other than increases.
6. I don’t know
Increased precipitation

- I have definitely noticed this change: 3%
- I have noticed this happening to some extent: 14%
- I have heard others talking about this change, but I haven’t noticed it myself: 3%
- I have not noticed this change: 26%
- I have noticed important changes in precipitation other than increases: 26%
- I don’t know: 29%

I have definitely noticed this change. I have noticed this happening to some extent. I have heard others talking about this change, but I haven’t noticed it myself. I have not noticed this change. I have noticed important changes in precipitation other than increases. I don’t know.
Changes in sea ice

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know
Changes in sea ice

- 26% have definitely noticed this change.
- 17% have noticed this happening to some extent.
- 40% have heard others talking about this change, but I haven’t noticed it myself.
- 3% have not noticed this change.
- 14% don’t know.
Increasing air temperatures

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I have noticed important changes in air temperature other than increases.
6. I don’t know
Increasing air temperatures

- 29% I have definitely noticed this change.
- 34% I have noticed this happening to some extent.
- 6% I have heard others talking about this change, but I haven’t noticed it myself.
- 11% I have not noticed this change.
- 3% I have noticed important changes in air temperature other than increases.
- 17% I don’t know.
Increasing ocean temperatures

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I have noticed important changes in ocean temperatures other than increases.
6. I don’t know
Increasing ocean temperatures

- I have definitely noticed this change: 19%
- I have noticed this happening to some extent: 19%
- I have heard others talking about this change, but I haven't noticed it myself: 28%
- I have not noticed this change: 6%
- I have noticed important changes in ocean temperatures other than increases: 3%
- I don't know: 25%

I have definitely noticed this change.
I have noticed this happening to some extent.
I have heard others talking about this change, but I haven't noticed it myself.
I have not noticed this change.
I have noticed important changes in ocean temperatures other than increases.
I don't know.
Coastal erosion

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I have noticed important changes to coast lines other than erosion.
6. I don’t know
Coastal erosion

- 22%: I have definitely noticed this change.
- 11%: I have noticed this happening to some extent.
- 14%: I have heard others talking about this change, but I haven’t noticed it myself.
- 17%: I have not noticed this change.
- 8%: I have noticed important changes to coast lines other than erosion.
- 28%: I don’t know
Seasonality

Have you noticed any of these changes? Select all that apply.

1. Shorter and warmer winters
2. Longer ice-free season
3. Spring break up is happening earlier and more quickly
4. Fall freeze up is happening later and more slowly, often with abnormal freeze-thaw cycles.
5. Changing weather conditions are most noticeable in the periods of spring break up and fall freeze up
6. Recent summers have been rainier than usual
7. I am not seeing significant changes
8. I don’t know
Seasonality Trends

15 Shorter and warmer winters
10 Fall freeze up is happening later and more slowly, often with abnormal freeze-thaw cycles.
8 Changing weather conditions are most noticeable in the periods of spring break up and fall freeze up
6 Longer ice-free season
5 I don’t know
5 Spring break up is happening earlier and more quickly
4 I am not seeing significant changes
2 Recent summers have been rainier than usual
Topic 2
Changes in Marine + Coastal Sea Life
Changes in Marine and Coastal Sea Life

• Examples of observed changes
• Examples of expected future changes
Changes in climate cause changes in fish populations

Bering Sea pollock

Sea surface temperature (°C)

Biomass (1000 t)


0 500 1000 1500 2000 2500 3000 3500 4000 4500

8.0 8.2 8.4 8.6 8.8 9.0 9.2 9.4 9.6 9.8 10.0
Cold Pool - a “driver”
Krill respond to water temperatures
Independent of climate change, populations go up and down

Historic catch of major groundfish species

- Exploitation Rate
- Catch as % of biomass

Year: 1955 to 2005

Species:
- POP
- pollock
- Atka
- sablefish
- halibut
- cod
Independent of climate change, populations go up and down

- Eastern AI Pelagic Forager Biomass
- Eastern AI Apex Predator Biomass
- Eastern AI SSL non pup counts
- Eastern AI School Enrollment

Change driven by many factors
Change driven by many factors
20th Century Conditions \( \text{CO}_2 = 350 \text{ ppm} \)

- Sea ice present November-June
- Ice obligate species dominate (polar bear, walrus, ringed seal, bearded seal)
- Benthos P > Water column P

21st Century Conditions \( \text{CO}_2 > 400 \text{ppm} \)

- Less ice expanse/volume, earlier ice melt, later ice return
- Seasonal migrants dominate (gray whale, fin whale, minke whale, humpback whale, killer whale)
- Water column P > Benthos P
Statistical Downscaling of Walleye Pollock based on SST
Mueter et al. 2011

Predicted decline in Bering Sea Pollock
Near surface concentrations of euphausiids (krill) in August

Georgina Gibson UAF, Al Hermann UW

Future of key prey species?  Model results vary
Clicker Time!

Part 2 of 4 – Changes in fish and wildlife habitats and species
Fish/Shellfish

Are you observing or hearing of important changes, that you believe may be climate change driven, in the following species? Select all that apply.

1. Herring
2. Pollock
3. Halibut
4. Cod
5. Crab species
6. Rockfish
7. Other
## Changes in Fish

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Crab species</td>
</tr>
<tr>
<td>12</td>
<td>Halibut</td>
</tr>
<tr>
<td>12</td>
<td>Pollock</td>
</tr>
<tr>
<td>6</td>
<td>Herring</td>
</tr>
<tr>
<td>5</td>
<td>Other</td>
</tr>
<tr>
<td>4</td>
<td>Rockfish</td>
</tr>
<tr>
<td>3</td>
<td>Cod</td>
</tr>
</tbody>
</table>
Fish

Of the species this group identified as the most affected by climate change (________), how is this species changing? Select all that apply.

1. Overall increase
2. No change
3. Overall decrease
4. Shifting locations
5. Shifting timing
## Changes in Selected Fish/Shellfish Species

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Shifting locations</td>
</tr>
<tr>
<td>9</td>
<td>Overall decrease</td>
</tr>
<tr>
<td>9</td>
<td>Shifting timing</td>
</tr>
<tr>
<td>3</td>
<td>Overall increase</td>
</tr>
<tr>
<td>2</td>
<td>No change</td>
</tr>
</tbody>
</table>
Fish/Shellfish

Of the species this group identified as the second most affected by climate change (________), how is this species changing? Select all that apply.

1. Overall increase
2. No change
3. Overall decrease
4. Shifting locations
5. Shifting timing
Changes in Second Selected Fish/Shellfish Species

14  Overall decrease
8   Shifting locations
4   Shifting timing
1   Overall increase
Marine Mammals

Are you observing or hearing of important changes, that you believe might be climate change driven, in the following species? Select all that apply.

1. Sea lions
2. Sea otters
3. Seals
4. Whales
5. Walrus
6. Other
<table>
<thead>
<tr>
<th>Count</th>
<th>Mammal</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Whales</td>
</tr>
<tr>
<td>9</td>
<td>Sea lions</td>
</tr>
<tr>
<td>6</td>
<td>Walrus</td>
</tr>
<tr>
<td>5</td>
<td>Other</td>
</tr>
<tr>
<td>2</td>
<td>Sea otters</td>
</tr>
<tr>
<td>2</td>
<td>Seals</td>
</tr>
</tbody>
</table>
Marine Mammals

Of the species this group identified as most affected by climate change, how is this species changing? Select all that apply.

1. Overall increase
2. No change
3. Overall decrease
4. Shifting locations
5. Shifting timing
Changes in Marine Mammals

11  Shifting locations
5   Overall decrease
4   Shifting timing
3   Overall increase
1   No change
Have you observed any of the following other changes in marine and coastal life? Select all that apply.

1. More piles of seaweed on the beach
2. Increased abundance of jellyfish
3. Increased abundance of octopus
4. Increased abundance of eagles
5. Occurrence of “weird bugs”
6. Increased abundance of salmon sharks.
7. New types of birds
8. Invasive or nonnative species
9. Other
10. I have not noticed any changes
Other changes in marine and coastal life

9  Increased abundance of jellyfish
6  Invasive or nonnative species
3  Occurrence of “weird bugs”
2  New types of birds
2  Increased abundance of salmon sharks.
1  Other
1  More piles of seaweed on the beach
1  Increased abundance of eagles
1  I have not noticed any changes
Topic # 3

Impacts to People + Communities
ABSI Region Communities

[Map showing locations such as Gambell, Savoonga, Saint Paul, Saint George, Unalaska, Akutan, Nikolski, Shemya, Adak, Atka, and Atka.]
Identified Vulnerabilities of Island Communities around the World*

- Sea level rise
- Coastal erosion
- Increased storminess
- Isolation from emergency response
- Less access to Federal and State resources
- Rapid shifts in fish stocks and other ocean life

*International Panel on Climate Change
"Drivers" of Vulnerabilities in ABSI Region Communities

All the subjects we’ve been discussing...

• Increased ice and snow free season
• Unpredictable changes in fish and marine mammal movements
• Increased abundance of nuisance species (e.g., jellyfish, salmon sharks, flounders)
• Etc., etc.
Potential Regional Vulnerabilities

- Commercial Fishing, e.g., shifting fish stocks
- Subsistence Culture & Harvest, e.g., forced change in traditional harvest practices
- Cultural Resources, e.g., erosion of archeological sites
- Infrastructure, e.g., impacts on buildings, sewage lagoons, landfills, roads
Secondary Changes Related to Climate Change

- Increased vessel traffic from arctic development
- Spread of invasive species
- Distribution and prevalence of pathogens
- Re-exposure of contaminated materials from previous military sites
- Broader, secondary socio-economic changes, e.g., impacts on jobs, on out-migration, on energy policy
Clicker Time!

Part 3 of 4 – Impact on People & Communities
Decreased availability of subsistence resources.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Decreased availability of subsistence resources.

- 36%: I have definitely noticed this change.
- 14%: I have noticed this is happening to some extent.
- 23%: I have heard others talking about this change, but I haven’t noticed it myself.
- 9%: I have not noticed this change.
- 18%: I don’t know.

I have definitely noticed this change.

I have noticed this is happening to some extent.

I have heard others talking about this change, but I haven’t noticed it myself.

I have not noticed this change.

I don’t know.
Increased travel distances, costs, and safety concerns related to storminess and accessing subsistence resources.

**To what extent have you noticed this change?**

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Availability and access to subsistence resources.

- 28% have definitely noticed this change.
- 12% have noticed this is happening to some extent.
- 16% have heard others talking about this change, but I haven’t noticed it myself.
- 24% have not noticed this change.
- 20% don’t know.
Decreased availability of commercial fishing resources.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Decreased availability of commercial resources.

- 48%: I have definitely noticed this change.
- 7%: I have noticed this is happening to some extent.
- 19%: I have heard others talking about this change, but I haven’t noticed it myself.
- 11%: I have not noticed this change.
- 15%: I don’t know.
Increased travel distances, costs, and safety concerns related to storminess and accessing commercial resources.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed that this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Increased travel distances, costs, and safety concerns related to storminess and accessing commercial resources.

48% I have definitely noticed this change.
11% I have noticed that this is happening to some extent.
7% I have heard others talking about this change, but I haven’t noticed it myself.
7% I have not noticed this change.
26% I don’t know.
Loss of cultural resources due to coastal erosion or other climate related effects.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Loss of cultural resources due to coastal erosion or other climate related effects.

I have definitely noticed this change. 15%
I have noticed this is happening to some extent. 11%
I have heard others talking about this change, but I haven’t noticed it myself. 11%
I have not noticed this change. 26%
I don’t know. 37%
Impacts to infrastructure (e.g. docks, roads, breakwaters).

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Impacts to infrastructure due (e.g., docks, bridges, roads, breakwaters).

- I have definitely noticed this change: 16%
- I have noticed this is happening to some extent: 44%
- I have heard others talking about this change, but I haven't noticed it myself: 16%
- I have not noticed this change: 12%
- I don't know: 12%
Increased vessel traffic.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Increased vessel traffic.

- 48% I have definitely noticed this change.
- 17% I have noticed this is happening to some extent.
- 9% I have heard others talking about this change, but I haven't noticed it myself.
- 22% I have not noticed this change.
- 4% I don't know.

I have definitely noticed this change. I have noticed this is happening to some extent. I have heard others talking about this change, but I haven't noticed it myself. I have not noticed this change. I don't know.
Spread of pathogens (e.g., PSP).

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Spread of pathogens.

- 28% I have definitely noticed this change.
- 16% I have noticed this is happening to some extent.
- 24% I have heard others talking about this change, but I haven’t noticed it myself.
- 12% I have not noticed this change.
- 20% I don’t know.

I have definitely noticed this change.
I have noticed this is happening to some extent.
I have heard others talking about this change, but I haven’t noticed it myself.
I have not noticed this change.
I don’t know.
Re-exposure of contaminated sites.

To what extent have you noticed this change?

1. I have definitely noticed this change.
2. I have noticed this is happening to some extent.
3. I have heard others talking about this change, but I haven’t noticed it myself.
4. I have not noticed this change.
5. I don’t know.
Re-exposure of contaminated sites.

- 20% I have definitely noticed this change.
- 20% I have noticed this is happening to some extent.
- 24% I have heard others talking about this change, but I haven’t noticed it myself.
- 12% I have not noticed this change.
- 24% I don’t know.
Topic # 4
Greatest Concerns, Adaptation, and Research Priorities
Changes of greatest concern

Of the possible vulnerabilities of the area which may be due to climate related changes, which three give you the greatest concern? Select three.

1. Changes in commercial fishing
2. Changes in subsistence
3. Impacts to cultural resources
4. Impacts to infrastructure
5. Vessel traffic
6. Pathogens
7. Contaminated sites
8. Generally not concerned
Topics of Greatest Concern

15 Changes in commercial fishing
12 Changes in subsistence
 7 Vessel traffic
 6 Impacts to cultural resources
 5 Contaminated sites
 5 Impacts to infrastructure
 5 Pathogens
Which areas should be priorities for research related to climate change? Please pick your top 3.

“Environmental Drivers”
1. Storminess + wind patterns
2. Precipitation
3. Sea ice
4. Air temperature
5. Ocean temperature + the cold pool

Potential Vulnerabilities
6. Coastal erosion
7. Commercial fisheries
8. Subsistence resources
9. Other marine and coastal species
10. Vessel traffic
11. Contaminated sites
12. Pathogens
13. Local economy
14. Adaptation strategies
15. Other
16. None of the above, I don’t want to direct research to climate change issues
Research Direction

13  Air temperature
6   Precipitation
5   Coastal erosion
5   Commercial fisheries
4   Pathogens
4   Potential Vulnerabilities
4   “Environmental Drivers”
3   Contaminated sites
3   Subsistence resources
2   Ocean temperature + the cold pool
2   Vessel traffic
Are you already making changes in your life due to what you believe are the result of climate change?

1. Yes – significant changes
2. Yes - a few changes
3. Yes - minimal changes
4. No changes
Making changes in your life

- Yes – significant changes: 20%
- Yes - a few changes: 28%
- Yes - minimal changes: 36%
- No changes: 16%
Discussion

If you think about changing your life to respond to climate change:

– What kinds of changes?
– What adaptation strategies, if any?
Thanks for your time, and energy! Some things to remember...

- This huge, important, complex topic won’t be ‘answered’ by this one assessment.
- There is significant uncertainty around any vulnerability assessment. We’re working “at 50,000 feet”
- New information will come forward, and undoubtedly change our understanding
- By reaching out to you who live in and know the area we aim to make this vulnerability assessment more useful and more accurate, for the project sponsors & the region.
- Let’s keep the conversation going!
  - Draft report out in February
  - Contact
Aleutian & Bering Climate Vulnerability Assessment - ABCVA

Unalaska Lecture & Community Lecture - September 2014

More at: https://absilcc.org