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Connecting Communities, Managers, and Researchers to Promote Resilience and Adaptation on Alaska's Coasts.

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5 Regional Coastal Resilience & Adaptation Workshops in 2016

- Bering Strait, Nome
- Aleutian/Pribilofs, Unalaska
- Bristol Bay, King Salmon
- Northwest Arctic, Kotzebue
- Southeast Alaska, Ketchikan (Alaska Sea Grant)

300 individuals, 52 tribes, 16 state & federal agencies

Promoting Resilience and Adaptation in Coastal Alaska

- Bering Strait Region, Nome
- Aleutians Region, Unalaska
- Bristol Bay Region, King Salmon
- Northwest Arctic Region, Kotzebue

The Changing Climate of Southeast Alaska: Tribal led Monitoring, Mitigation and Adaptation Activities

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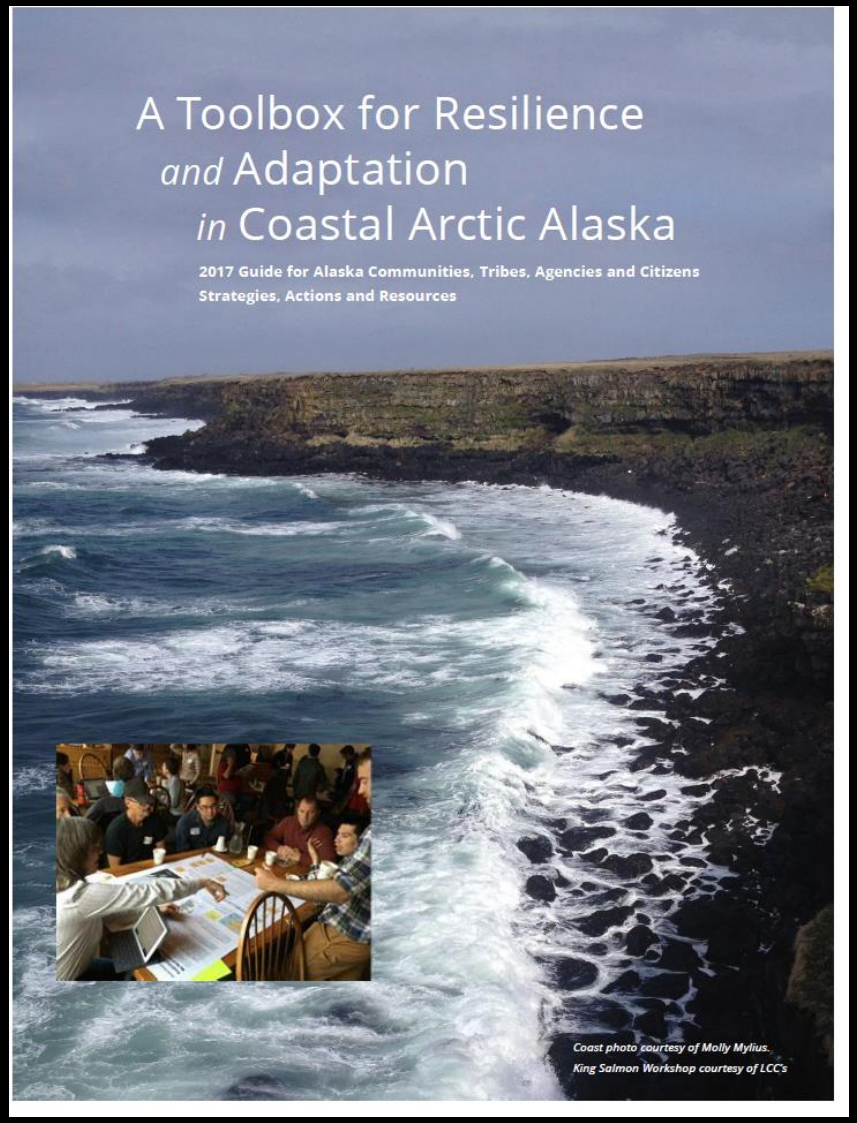
Getting Climate Change Information into the Hands of Decision-Makers

A Coastal Resilience & Adaptation Toolkit

1) Case studies of Alaskan coastal communities and resource managers that are responding to climate change

2) Summary of the nature and severity of coastal climate change, including what to expect in the future



The Ocean is Our Grocery Store & it's Changing in Ways We've Never Seen

The Bering Sea/Bering Strait and Chukchi Sea form one of the richest, most pristine and biologically productive ocean systems on the planet. The same unique characteristics that support this area's productivity – particularly the annual variations in sea ice – make this region especially vulnerable to the impacts of climate change.

Changing Sea Ice/Changing Ecosystems: *"We're seeing changing boundary lines; humpbacks, sea lions, other species are moving north" (Kotzebue).*

"Currents push super rich deep sea water up onto the Bering Sea shelf; it's amazingly productive & the reason 30,000 people live in the region." (King Salmon)

How is Climate Changing Impacting Marine Ecosystems? And How Might We Respond? Three Examples:

NEW PATHS FOR WHALES & MARINE SHIPPING?

CHANGE DRIVERS: Reduced sea ice opens the arctic to new vessel traffic, posing risks of oil spills and disturbance of species and subsistence hunting.

CHALLENGES & EMERGING STRATEGIES : Climate change is altering whale migration timing and pushing migration routes farther from shore, disrupting vital subsistence traditions and forcing hunters to travel farther into hazardous seas. Growing vessel traffic requires establishing rules for shipping routes and vessel noise, and creating capacity for local oil spill response.

WALRUS, EIDERS & MELTING SEA ICE

CHANGE DRIVERS: Algae grows on the underside of sea ice. When the ice melts the algae falls and feeds marine food chains. Less sea ice means fewer ocean nutrients, and a cascading decline in benthic (ocean bottom) creatures, including things we like to eat, like crab, halibut and walrus, and the creatures they eat.

CHALLENGES & EMERGING STRATEGIES: Arctic wildlife and people have evolved sophisticated ways of living based on sea ice. Lose the ice, and lose the platform that walrus, seals, eiders and people use to hunt for food, rest and raise young, and sustain cultural traditions. Emerging response strategies include managing newly established onshore walrus haulouts and tools so hunters have real time information on shifting sea ice.

SALMON, COD, POLLOCK IN A CHANGING OCEAN

CHANGE DRIVER: The health of Bering Sea salmon, cod and pollock stocks rests on a complex web of nearly invisible creatures, from algae to zooplankton. The building blocks of this rich system are being fundamentally altered by warming waters and ocean acidification. Impacts include shifting fish locations, growing risks of harmful algal blooms, and less nutritious zooplankton – a key food source for the whole ecosystem.

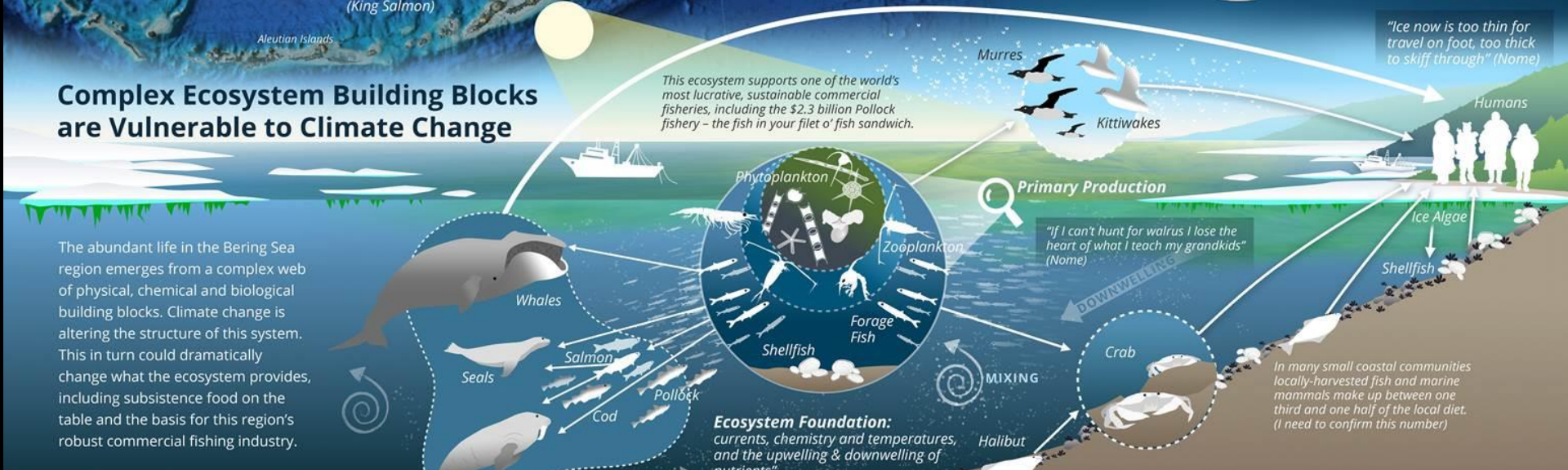
CHALLENGES & EMERGING STRATEGIES: Warming waters coupled with ocean acidification will modify and likely decrease key fish species populations. These changes will ripple through local life, affecting everything from subsistence to jobs & government tax revenues. Needed responses include better environmental monitoring and a new generation of regulations dynamic enough to keep up with a changing climate.

Complex Ecosystem Building Blocks are Vulnerable to Climate Change

The abundant life in the Bering Sea region emerges from a complex web of physical, chemical and biological building blocks. Climate change is altering the structure of this system. This in turn could dramatically change what the ecosystem provides, including subsistence food on the table and the basis for this region's robust commercial fishing industry.

This ecosystem supports one of the world's most lucrative, sustainable commercial fisheries, including the $2.3 billion Pollock fishery – the fish in your filet o' fish sandwich.

"Ice now is too thin for travel on foot, too thick to skiff through" (Nome)



"If I can't hunt for walrus I lose the heart of what I teach my grandkids" (Nome)

Ecosystem Foundation: *currents, chemistry and temperatures, and the upwelling & downwelling of nutrients"*

In many small coastal communities locally-harvested fish and marine mammals make up between one third and one half of the local diet. (I need to confirm this number)

An "Adapt Alaska" community grew from these workshops

- An informal statewide community, building stronger connections between land managers, researchers, community leaders and others working to adapt to Alaska's changing climate.
- Currently guided by a convening workgroup:

Aaron Poe, Aleutian and Bering Sea Islands LCC

Karen Murphy & **Leanna Heffner,** Western Alaska LCC

Karen Pletnikoff, Aleutian Pribilof Islands Association

Davin Holen, Alaska Sea Grant & ACCAP

Amy Holman, NOAA

Molly McCammon, Alaska Ocean Observing System

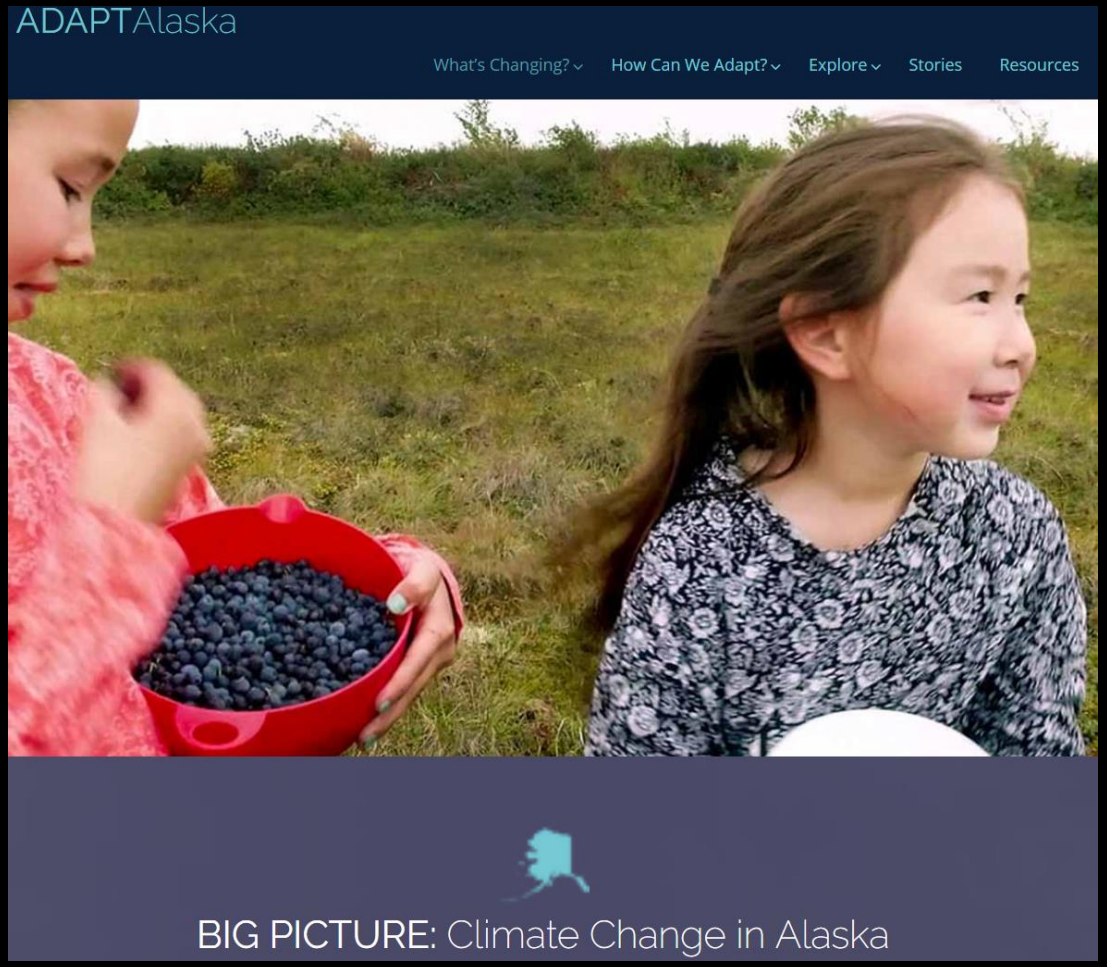
Heather Stewart & Chris Beck: Agnew::Beck Consulting

Three central goals…

- Better access to practical climate change information
- Increased adaptation capacity for communities, tribes, agencies and others
- A web of partners sharing & implementing community based resilience strategies

www.AdaptAlaska.org

- **A work in progress launched this week!**
- Tools, resources for communities, agencies, (e.g., from our coastal resilience toolbox)
- A place to see/share adaptation success stories and connect with others



More Adapt Alaska efforts…

- Two working groups:
  1) finding ways to streamline community adaptation planning
  2) best practices for integrating traditional ecological/indigenous knowledge and science to inform adaptation

- Collaboration with Alaska Sea Grant & others to synthesize coastal research/information needs
- Exploring a parallel synthesis of coastal management policy questions and needs…
- Potential future regional workshops & engagements at statewide conferences…

Opportunities for consideration

- An opportunity for the Council to connect with regional stakeholders on common adaptation interests
- Communities want to work with agencies and industry to find adaptation solutions—Adapt Alaska might be a way help make those connections?
- We can share an understanding of community perspectives on information and policy needs in coastal/marine systems
- A connection to the work of the FEP team?

Thank You

Ideas or questions?

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Photo by: Agnew::Beck