Enoch Decadal Oscillation (EDO)

How life has oscillated for Enoch in 30 years. The climate has warmed substantially, but the rain and snow is low. Although the government is here to help, people in the villages are fed up with bureaucracy. Life in the village has seen sweeping changes. We take a tour through a year of 2012 and take a quantum leap into the future of 2040.

Summertime…Home is where the Berries are

2012: We pick blueberries and salmon berries near Noatak during July and do more fishing.

By 2040, the blueberries are sparse because it is so dry, but there are abundant salmonberries due to the tundra fires. The berries go unpicked as everyone is away working in the mines when the berries are ripe.

Fall Caribou Hunting

2012: We take boats up the river and find the caribou. We are able to bring back 8 for our family.

2040: In the future, the caribou are skinny due to loss of lichen in recent fires. Those that the hunters find have diseases that the people don't recognize. It is hard find them. Poor families have to pool their money to buy gas to get one boat up the river.

Fall Moose Hunting

2012: Moose have been hunted near the village.

2040: In the future, Enoch becomes a moose hunting guide and makes enough money to spend his winters in Hawai'i. Overhunting results in a dramatic decline in moose and Enoch returns to Noatak.

Winter Trapping

2012: We set up a trapline from Noatak up to the Kelly River. We catch Lynx, wolf, wolverine, fox and marten.

By 2040, the trapping is poor around Noatak as fuel prices are too high to travel far. Two trappers put their money together to run one snowmachine and only get one wolverine.

Winter Ice Fishing

2012: Winter ice fishing for trout, whitefish, grayling and evening mudsharks at traditional spots. One family can bring home 50 pounds of fish.

2040: Ice on the river is thin and more dangerous and people fall through as they search for fish. One family only catch 10 fish, and there are no whitefish left.

Winter Wood Cutting

2012: We collect wood near the village on either side of the river or up in the hills.

2040: people are collecting dead wood from the recent burn. There is greater demand for wood now that fuel prices are higher.

Spring Whaling

2012: We snowmachine to Point Hope to catch Beluga, bowhead, seal, polar bear and walrus and sea ducks.

2040: The snow is gone and the rivers are thawing, so we need to fly to Point Hope. Now we can only afford to fly one person to Point Hope and there are no polar bears, walrus or seals in the area. Whaling was dangerous due to thin sea ice. The whales are covered in oil due to a spill under the sea ice.

Summer Camp

2012: We head down the Noatak by boat to the summer camp to get more seals, beluga and fish. We dry fish on racks on the beach.

2040: We drive the new gravel road down to the summer camp only to find that it washed away from a storm. In desparation we shoot a skinny caribou from the truck and head home. The Wildlife Troopers are there waiting for us.

Gussuq the Tussock

Far to the north, where the grasses still grow
Though the winds blow with smoke and soot when they blow
And the rivers are silty and slow when they flow
A young boy takes pause, ‘cause… he just needs to go.

“Hey!” growls a voice, “Don’t you pee on my head!”
The young Eskimo jumps and his face turns all red
He tugs at his pants and he swivels his head
“What’s that? Who are you? And what’s that you said?

The words spring from where a small grassy mound
Competes with willows and shrubs on the ground.
“I am the Gussuq the tussock, I speak for the land
For the birds, and the rivers, the bugs, beasts, and sand.

Sprout, you are young, and to you this seems strange
But I’ve weathered the years, and I’ve seen this land change
Once, winters were longer, and summers were shorter
And all of the north was much richer in water.”

The child considers. “My grandma says that.
She says that the berries were once ripe and fat.
And grandpa says once there was caribou meat
For every day, and not just for a treat.”

Grunts the tussock, “There are few caribou now.”
They are gone.” The Eskimo boy asks, “But how?
And why? Why did the caribou go?
And Gussaq the tussock replies, “Don’t you know?

For seasons and decades and then decades more
The climate grew different from decades before
But all of you humans just couldn’t agree
And so you did nothing. Now what do you see?

The warm, early springs make the caribou late
But the ice is too thin and it won’t bear their weight
Pale hunters have come where there used to be few.
They rival and bitterly bicker with you.

The miners, I hear, have been doing the same
Digging and dredging and scaring the game
Our lake is all silty from sloughing and slumping
And my caribou friends say there’s also been dumping.”

Young Sprout is nodding, but asks the grass clump
"What of the guests who don't litter and dump?
My father – he works with the folks at the park
Who float and watch birds and don't leave a mark.

Gussuck still growls. "But what of the fish?"
Sprout is uncertain. "There are some… I wish
There were more in our cellar under the ground
But our cellar is thawing, and the trout aren't around.

There's not much goose soup, it's too dry for ducks
When Dad tries to go in his boat he gets stuck.
Other kids like Doritos and pop…"
Gussaq snaps, "When their teeth all fall out, they will stop.

We tussocks are hardy," he goes on, with a groan,
But you humans – you can't survive on your own.
Your air is all clouded with ashes and smoke
And the filth in your water supply makes you choke.

"Gussaq," the boy cries, "I know it is true.
Everything's changing -- but what can I do?
There's no money, no answers, no one will agree…
How can I get them to listen to me?

"Tell this story," the tussock says, quick as a wink.
Tell them to plan, and to hope, and to THINK.
Tell your people about all the changes I see
And next time… watch out where you pee."

They used to call it breakup

They call me Kalla – I grew up near there and have been running the Koyukuk/Kobuk road since I took over the trapline from my old man in the 60's – now I drive the route with mail, fuel, sourdoughs and cheechako's – it just ain't the same.

They used to call it break up, but now it's just mush. And I'm not talking about dog mushing. Spring's coming earlier; and it's not freezing as hard in the fall and winter as it used to. There's more open water longer; I've lost two snogos because I've gone through the thin ice twice. Stopped mushing dogs in the '60's and now I've given up on the iron dogs too.

Look at all the bushes and trees; they didn't used to be here like they are now. It used to be mostly tundra. And I mean frozen ground, not this mushy stuff you see now.

I never thought I'd see the day when I'd say this but this road to the mines would not have been built this way if the feds hadn't done such a good job working with folks. They helped get this great road that runs to the prettiest country in the state. There are a few places where you can get supplies rather than a bunch of things thrown up. They even look like the old roadhouses that used to be here back when there was enough cold weather for the old winter sled roads. The locals are working these spots, along with a few campgrounds and guiding from the recreation points along the road. Many are working at the mines - I see 'em coming back to the village every now and again. Bring some money home….it's not caribou or fish but I guess it probably helps. The way I see it, it is a damn good thing that there are a couple of families in each village doing things the old ways. It's got to be tough as they only thing there is more of is berries and I think that is what holds it together. The village even had to move to more stable ground that ain't so wet, but it looks like this site will last a good long time.

When the powers to be decided that the road was going to happen, they decided to do it differently this time. In the old days, we would just take a cat out and push a road in – you can still see evidence of that now back next to the old camps– usually all mucked up with a bunch of junk and an old blue tarp to hide it a bit. They've been working to keep the fish running and helping to keep a subsistence lifestyle possible. I don't know - maybe it's working. I had my doubts with big old culvers that were big enough to be mucked out with cats, but the water runs through better and the road don't wash out like some of those old cat trails did. There ain't a bunch of crappy weeds, either, as the State and Feds used clean pits and clean vehicles. That just helped keep the old creatures around to eat what they always ate.

Most of the other village kids I drive are working in town and every so often they pack up to come see the family/elders. They don't get as much chance to hunt and trap the animals because there aren't as many and some of them don't do what they used to do. But – there seems to be more younger folks staying around as they have some

livelihood and they aren't all heading south to Fairbanks or Anchorage. I don't think my kids, Kiana and Ruby, would be staying out in the bush if it was just running a trapline in wet snow and soggy ground. It ain't the same, but it seems to work.

I don't know what the future will bring but everyone worked together to get a way into the mines and they did it by working together rather than fighting each other every step of the way. Oh - that doesn't mean that there weren't fights, but the fights were over how to do it better rather than just on the short term cheap – that didn't seem the Alaskan way at the time, but it looks like the final result will help keep most of the bush lifestyle while allowing people a chance to make a living.

I never get tired of driving this road and talking with folks coming home.

Narrative Development: "The Last Pingo"

"State of the Arctic" address in New Noatak. Presidential Clinton visits Noatak for telecast/simulcast holograph of the speech. Signing a treaty with "the Arctic 8"? G50 nations?

Introduction: James Nageak, Jr.

Welcome to the Enoch Mitchell Community center here in New Noatak. As you know, we've had to relocate. We want to thank the federal and state governments for their assistance with relocating our village and helping our community adapt to change while preserving cultural traditions. Together, we have managed to integrate thousands of years of Inupiaq knowledge with new technologies to build super-insulated and efficient homes adapted to arctic conditions in areas that best meet the needs of our community while being as resilient as possible to the changing environment.

Adaption is not new to us. The Inupiat people have been adapting to their environment for thousands of years, an environment that is constantly in flux. We have fought hard to preserve as many of the traditional subsistence lifeways as possible. I used to hunt caribou, but now the natural caribou migrations don't come here anymore. **We've had to adapt.** Reindeer meat is imported here from Fairbanks or Canada. We hunt and trade moose

for caribou hunted by our neighbors on the North Slope. After much study, involving local input and multiple agencies, we have introduced woodland caribou from Canada which have proven to be much more resilient to the changes our local region is experiencing.

Other animals have increased in the last couple of decades because it is warmer and wetter. **We've had to adapt**. We have more waterfowl, muskrat, coyotes, beaver, grolar bear, and we've seen changes in the numbers and distribution of many other species. We have weaker wild runs of sheefish and whitefish, with new runs of silver and red salmon developing in our streams and rivers. To assist these newly developed fisheries, the Noatak hatchery has been revitalized- augmenting an important food source, as well as providing jobs.

We have concerns about our local foods – from both contaminants and disease. Mercury levels in northern pike have increased and are a threat to children and pregnant women. We have had difficulties preserving and drying our food by traditional methods. **We have had to adapt.** We have altered parts of traditional diet to allow consideration of health advisories and we have

had to become more reliant upon several modern methods of storage.

We are very proud of our part in these multi-faceted efforts and our village is honored to be the site of today's announcement. It is my privilege to introduce President Clinton.

Speech: President Clinton

Thank you, James.

The International Coalition of Arctic Nations (I-CAN) recognizes that there have been dramatic changes in the Arctic and the importance of preserving natural and cultural areas for future generations. Thank you for inviting me to New Noatak.

We are answering a call that is two decades old. In 2012, groundbreaking work started: the Arctic LCC and CCSP visionaries laid out the potential for dramatic climate related change and formulated a plan to move forward. At the time, the Arctic was on the frontline for climate change impacts, experiencing up to ten times the consequences felt in the lower 48. With increased awareness and understanding of the ramifications of continuing a carbon-based economy, Arctic state, local and federal governments got together with local stakeholders to address the challenges facing the planet. We acknowledged that problems were on the horizon and took proactive steps to adapt and mitigate the changes we saw. These efforts were widely accepted by international communities, and bring us together here today as we sign the ICAN Climate Agreement. Lessons learned in the past twenty years are being applied across the Arctic under this agreement.

The great visionaries of 2012 developed a model of change and plan for mitigation. Some of the key lessons learned earlier in

the century are being used to guide our actions. We greatly appreciate the community participation and citizen science efforts of the last 20 years. The result has been improved data collection and, most importantly, education and engagement of the public. Interagency planning has led to the development of enterprise teams for inventory networks, risk analysis and implementation of mitigation efforts focused on the breadth of issues facing the ICAN. For example, in the face of diminishing subsistence opportunities, the teams augmented fish availability with hatcheries and introduced new species adapted to the changing conditions. A critical part of these teams were those you see around you. You have much to be proud of.

We are here today to say that we stand unified and strong to address these challenges!

Sensitive resources identified back in 2012 have been protected to the extent possible, and you have all contributed to the inventory and monitoring program of these resources. Traditional ecological knowledge was the first "environmental monitoring"- during a time when the failure to monitor your environment could easily result in serious or fatal circumstances.

There is no feasible way to reverse the biophysical and social effects of climate change. Management strategies have embraced the spirit of preserving the wilderness. While preserving large, significant natural and cultural resource areas, we have been able to benefit local economies by supporting well-planned mineral and tourism developments. Within the conservation units, natural processes have been allowed to dominate unfettered across the Arctic landscape for the past two decades. We have formulated a way, with effective stakeholder input, to balance conservation with some

development. Economic opportunities from things such as tourism and resource development will not pass us by. We have found a path to success in “responsible development” that allows these opportunities to occur in a strong regulatory framework that prevents major impacts to subsistence resources and practices.

We visited the old townsite this morning by boat. We heard stories from elders about the storms and flooding that occurred, as well as tales of the vibrant community that existed there and now here.

Your homes have had to be moved, but we have been proactive instead of reactive and anticipated these needs and their associated costs. You, the residents, have played a significant role in this process, thereby preserving local self-determination. The new housing constructed has been given the utmost consideration by a group of engineers trained in innovative building solutions for cold climates. The net result, with input from stakeholders, is homes that are responsive to users needs while being highly energy efficient and resilient to the changes we are experiencing today and into the future. The use of alternative energy sources resulting in lowered fuel bills, ample supply if clean water for drinking and hygiene resulting in improved health outcomes and the selection of a protected site resulting in community security are all basic needs that have been filled.

The transition from a reactive to a proactive mode was key in all of the approaches described above. Today, we are a global society, none more so than in the Arctic. As you are likely aware, carbon emission are on the decline. The public is the most informed in history as to how their actions have the potential to impact the world around them. By being party to

this agreement, we are showing solidarity in this fight- a fight to retain our quality of life, our homes and the traditions we hope to pass down to our grandchildren's grandchildren. Thank you.

We've cleaned up the NPRA to capture the caribou migration. Joint state/federal venture. Merging agencies? Swapped land for the mineral rights.

We have all thes problems come forward, but we were thinking about it and we were prepared for it, so I have some good news to report.

Hunting –

Floods – we had to move but we had the funds to move and accommodate for transportation and other resources. Improved river travel. James Nageak, VP?

Data – Strong presence of community-based participatory research. Smartphones with an app for NPS observations.

Talked to grandfather James Nageak and he remembers those days…. He remembers sitting in the meeting.

Issues: subsistence, river access, flooding, transportation

Emergency response – built up response capability because… trained village response teams (VRTs) for all interior river communities.

Enterprise teams – increased I&M capacity, cost-efficient, well-trained. "Tiger Teams". Enterprise teams of resource specialists to mitigate change, followed by interpretation team: PR.

Transportation – Hovercraft. OVRs?

Tourism – increased demand to see these last pristine areas, Native corporations gear up to provide jobs and opportunities for local residents. Cruise ships come into Red Dog Port.

Salmon hatchery revitalized, other fisheries for sheefish or new species?

Balance –