

Unalakleet



- Unalakleet is located 398 miles northwest of Anchorage.

Without vehicles until the 1950's Alaskan villages were strategically situated near their main food and heat source. They relocated when illness was killing their people and when storm events threatened them.





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The storms of Western Alaska start a couple months later than your hurricane season . The worst start in the fall, September, and typically are over by early December, close the end of your storm threat. We went 29 years without a significant fall storm from 1974 till 2003 and had 6 in 11 years. In 2013 we were threatened in January, a first in my lifetime, the ocean had been frozen over in the past but now rarely freezes.

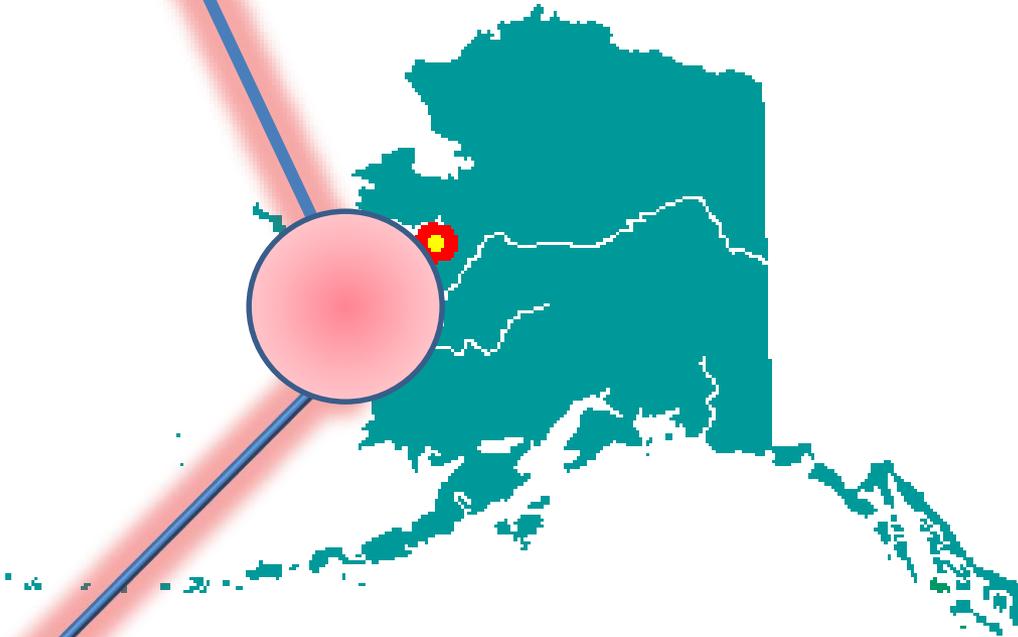


Many Alaska villages were historically nomadic and would migrate inland in the fall for the winter safe away from the ocean storms, and in the spring move to the coast for access to marine mammals and fishing harvesting. To keep mobilization costs down the Bureau of Indian Affairs, at the time responsible for rural Alaska education, constructed schools on the coast in the mid 1930's forcing some communities to anchor their settlement in the flood zone areas.





These are the communities I work with in the Norton Sound that have experienced flooding and erosion in the previous 6 storms. Storms in the past century occurred in November, since the turn we have seen storms of flood magnitude in October and recently as early as September 23rd.



Historically the storms of western Alaska came from the Bering Sea. With the lack of sea ice in the Arctic Ocean a new birthplace for storms has developed. This creates problems for communities facing the northwest and we now see intensified storms coming from different directions.

A normal year we would experience -30 degrees Fahrenheit for weeks on end from December till March with short milder days when systems would move in from the Bering Sea. I plug my truck in when the temperature gets down to +10 degrees. This year I haven't plugged it in since December 5. As you can see in this November flood of 1964 the ice had already froze to 2 feet thick.



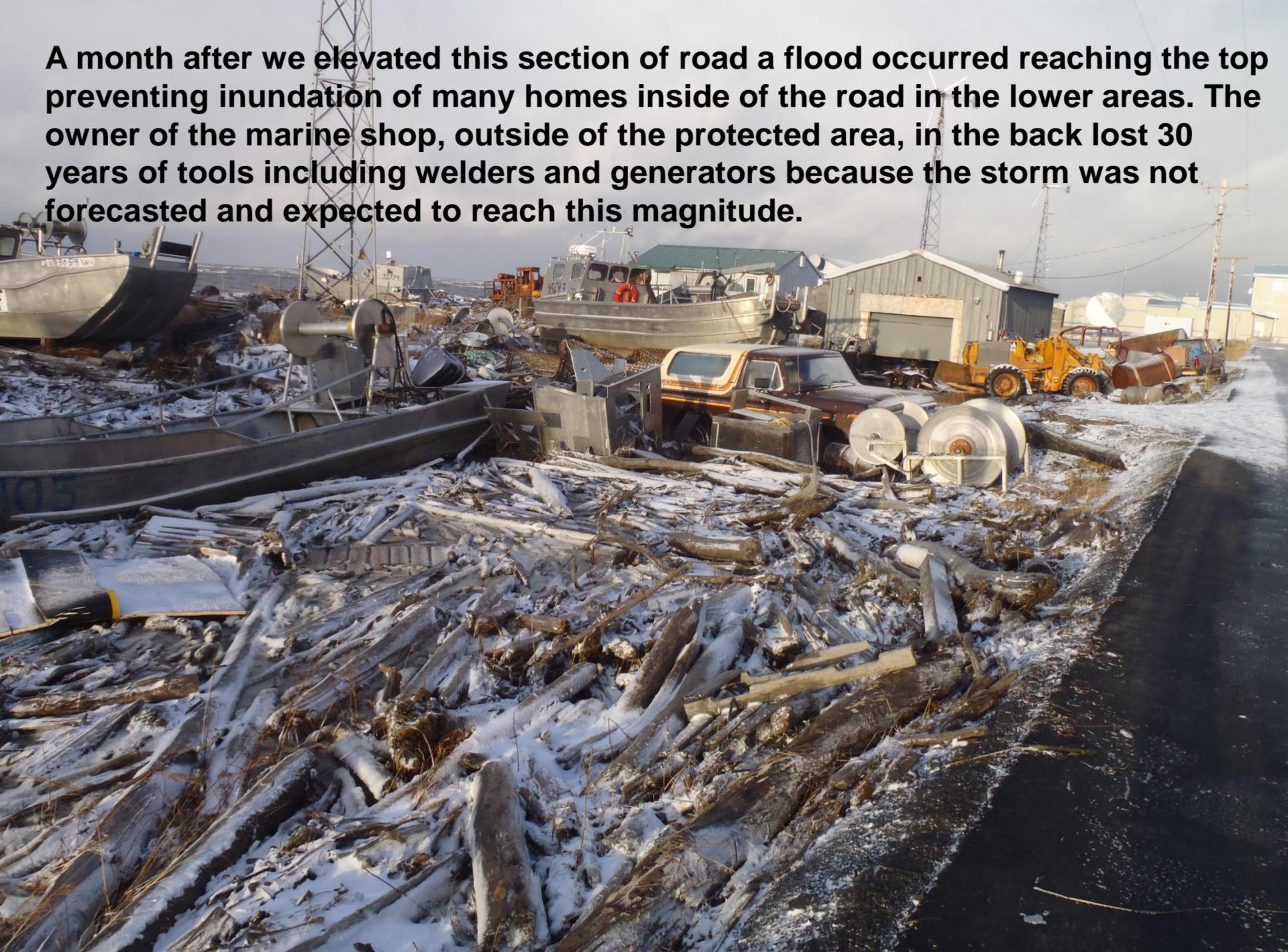


This road in Unalakleet, built after the floods of '74 provides protection from the flood water and keeps debris from encroaching into the residential area as seen in the previous slide. Note the vegetation that has grown over the years preventing erosion.

In 2009 we elevated this road in some areas as high as 3 feet and had the erosion project in the back constructed a year later.



A month after we elevated this section of road a flood occurred reaching the top preventing inundation of many homes inside of the road in the lower areas. The owner of the marine shop, outside of the protected area, in the back lost 30 years of tools including welders and generators because the storm was not forecasted and expected to reach this magnitude.





A road as shown in the previous photo could also serve the same purpose here in Shaktolik and provide much needed protection from the ocean and logs. These logs come from the Yukon River with the spring river flood and have dissipated the waves preventing encroachment of the waves but could be life threatening with a storm of a higher magnitude.



The school in Shaktolik is the highest structure in the village and is their only option for a safe shelter given they become a complete island in a storm. The airport has had water reach the parking apron.

There is no trigger mechanism to evacuate the community members in a storm of higher magnitude or tsunami that could potentially steam roll the village and its 230 residents. My father was born at the fall and winter site 8 miles inland in 1923 and the BIA constructed their school in 1935 just north of this site in a more vulnerable area.





This photo was taken from my deck in the flood of 2005, they are digging a hole to get below the frost level to give the water a place to drain.



We are building a dike to divert the water around the house. The dog thought this was fun.



The Corps of Engineers have been wonderful partners in assisting us with our mitigation projects. We are saving our community infrastructure necessary to buy us time to migrate into the hillside just north of the village.



Not every village is fortunate to have access to safe, higher ground close to their residences as in Unalakleet and Golovin making relocation extremely difficult and expensive. As seen above we are making the migration into the hillside gradually on our own dime but we do need assistance with access roads. Communities that do not have an access road to a relocation site are stuck waiting for an expensive relocation effort that seems unlikely to happen in time to avoid a major catastrophe. Without an access road the relocation would have to happen all at once making it cost prohibitive. With their growth they are in need of infrastructure that agencies are reluctant to fund because they don't want to put money in a place that needs to relocate.

Golovin has been hit with flood waters in the last 4 storms and has constructed a sand berm along the yellow section to protect their critical infrastructure. Afraid the funding agencies would take too long to act they used local resources, volunteer labor and equipment to construct the wall without going through the cumbersome permitting process. Had they not done that their communication system, school, clinic, fuel and water storage, store, and teacher housing would have been inundated. The red line is where the Corps of Engineers and Kawerak are working together to construct a road/dike as shown in Unalakleet.



We have yet to have a perfect storm. Factors that would lead to a perfect storm are wind direction, wind velocity, high tide of the month, high tide for that day, and a system that was slow moving. All of the 6 floods that have happened the last 2 decades have not had these factors aligned, should we experience a storm with as little as 3 to 5 of the factors aligned we could loose a whole community in Shaktoolik, Kivilina, and Shishmaref. Other villages such as Unalakleet and Golovin would loose much of their infrastructure but if approached with caution should not loose lives.



As warming progresses we too must evolve in our knowledge of the environment. We are kind of like the polar bear who must be able to read ice conditions and recognize what is safe for activity for our different harvest needs such as the seal hunting and crabbing shown.



Our children adapt quickly as seen with technology in this computer age. This will help to take on the challenges of a drastically changing environment as well as provide new opportunities.





**HIT AN ANIMAL. MY TRUCK
IS TOTALLED. I'M COVERED RIGHT?**

YES. WHAT DID YOU HIT?



A FISH