DROUGHT WORKSHOP
METLAKATLA INDIAN COMMUNITY
ANNETTE ISLANDS RESERVE

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Metlakatla Indian Community

February 26, 1926

WHAT DOES DROUGHT LOOK LIKE IN A TEMPERATE RAIN FOREST?

- Precipitation down from average of 118 inches annually to 80-90 inches in a year
- Reduced snowfall from an average of 41.9 inches to 33.6 inches in the last 10 years
- Low reservoirs resulting in:
  - Reduced municipal water availability
  - Need to use diesel generation vs hydro
- Forest impacts such as:
  - Pests surviving and increasing damages
  - Defoliation
  - Damage to evergreen foliage- eg. ‘burnt’ salal and other evergreens
  - Reduced winter survival for trees and shrubs
- Warmer water temperatures in streams, creeks and the ocean

IMPACTS FROM DROUGHT

- Using diesel vs hydro energy
- Need to purchase or supplement municipal water supplies
- Forest health impacts such as tree defoliation, increased pests (spruce aphid), damage to foliage, reduced berry production, or smaller fruits
- Warmer water temperatures increase algae blooms, reduce feed or change dynamics of types of foods for marine species, decrease survival of salmon fry in creeks, not enough water for salmon to spawn in, low oxygen concentrations in shallow hot streams, decreasing salmon survival, preventing spawning or reducing efficacy of spawning. Winter storms then scour out salmon eggs from impacted streams, thus further impacting salmon survival
- All subsistence foods, crops and materials are impacted in either availability or suitability, timing of harvest or even no harvest at all, reducing quality of life and food diversity

SIGNIFICANT LAKES

MIC relies on two lakes.
Chester Lake- supplies ALL the municipal water for the community and 1 MW of energy (when available)

Purple Lake has 3- 1 MW turbines available, only 2 can be operated simultaneously sustainably)

Yellow Circle – Chester Lake-70 acres (1544 acre feet storage capacity)
Yellow Star – Chester Powerhouse- 1 MW turbine

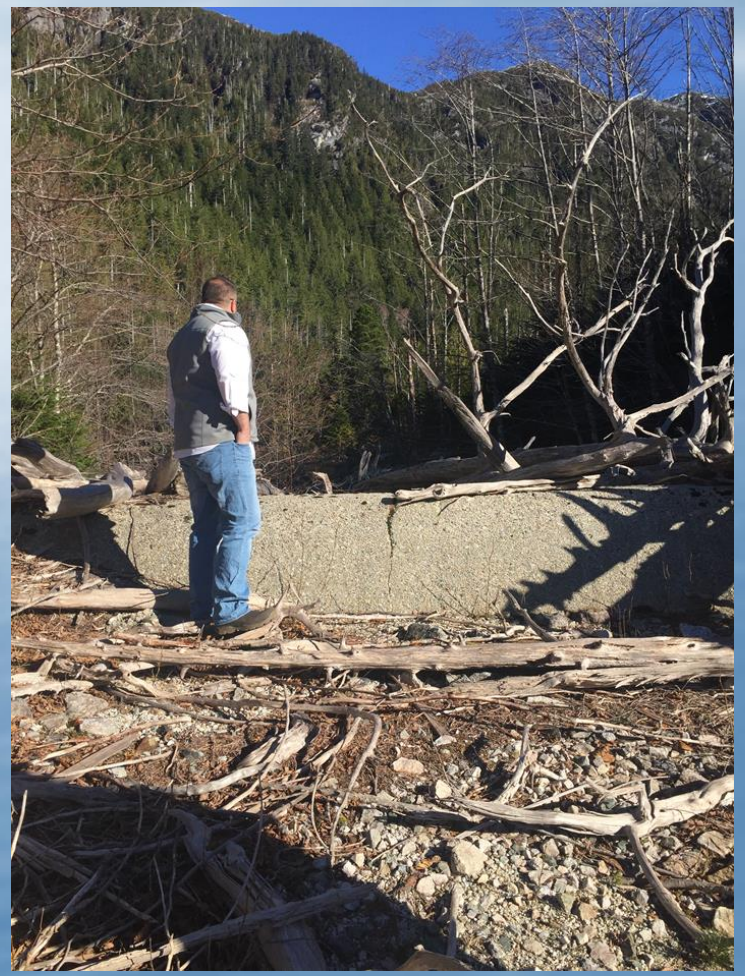
Orange Circle – Purple Lake-840 acres (25,100 acre feet storage capacity)
Orange Star – Purple Powerhouse three (3) 1 MW turbines

ENERGY AND DROUGHT

- Changing climate patterns and the demand for energy from our lakes has placed MIC is in a position where there is not enough water in either of the lakes we rely on to provide reliable hydropower.
- This means that the community is relying more and more on back-up diesel generation to meet the power demand for the community.

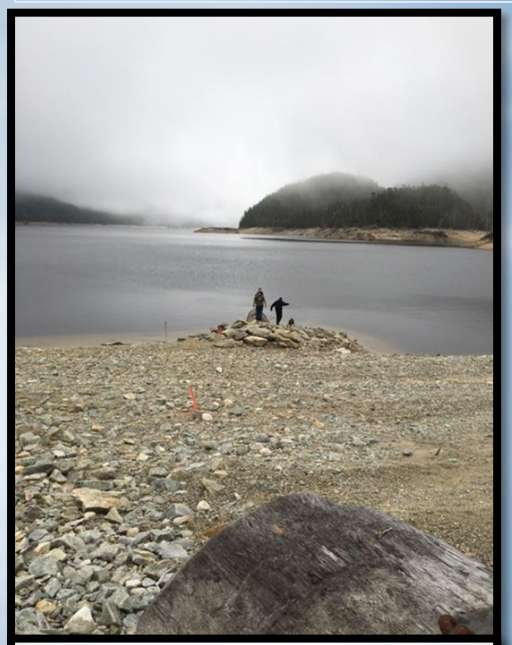
Purple Lake 2015

PURPLE LAKE MARCH 2, 2016



MARCH 2, 2016- ALDER AND OTHER SHRUB SPECIES ESTABLISHING CLOSER TO LOW LAKE LEVEL AT PURPLE LAKE

September 13, 2016

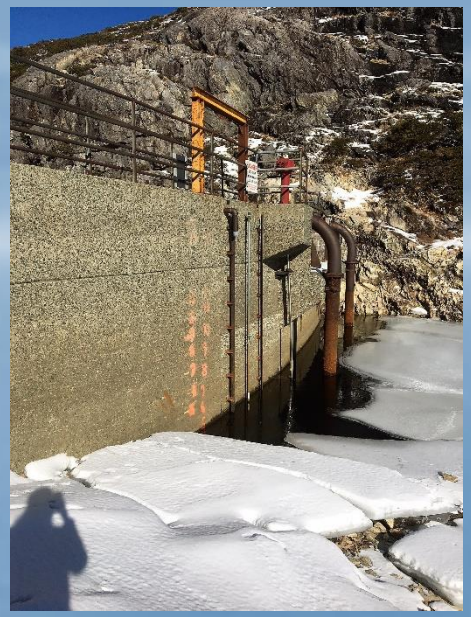


March 7, 2018

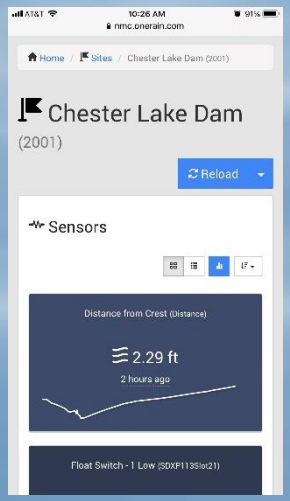
March 8, 2019

September 13, 2016

March 2018



January 7, 2019



March 8, 2019

April 4, 2018

WHAT DOES THIS MEAN?

- A drought in Southeast Alaska is not expected or anticipated
- The impacts are cumulative and devastating
- We need to educate ourselves to recognize drought indicators sooner, so we can mitigate negative impacts.
- For our community those primary indicators are:
  - Where, when and how much water is available in lakes and fish creeks
  - Recognizing increasing temperatures in lakes, streams and the impacts from those increases
  - Acknowledging the vulnerability of our communities from reduced snow pack, changing rain patterns, that were previously relied on to fill lakes, rivers, streams and reservoirs.
  - Low water in lakes equals steep economic impacts due to use of diesel instead of hydro
  - Changing subsistence harvest behaviors to maintain quality of life standards

Photo credit: Genelle Winter

QUESTIONS?

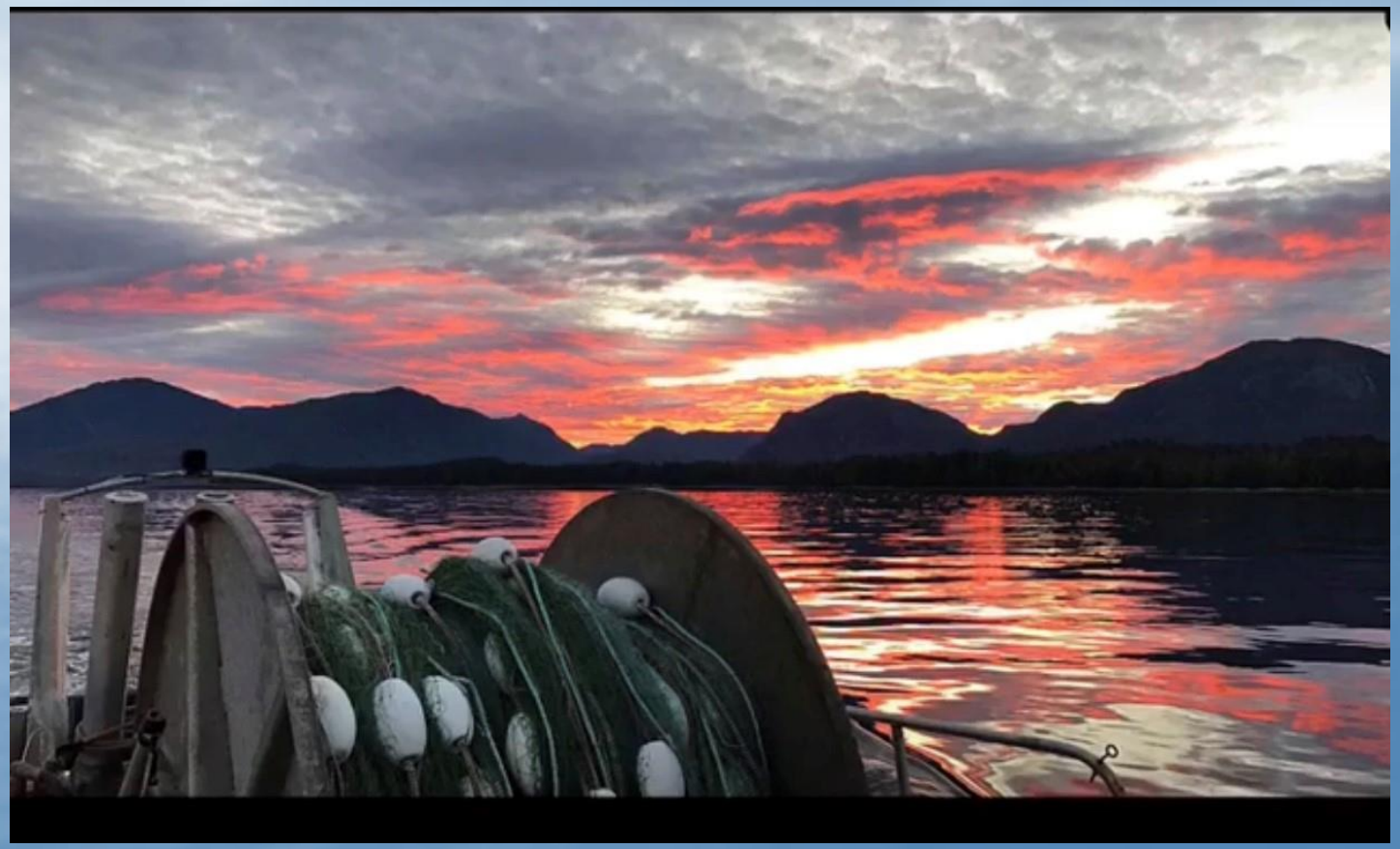


Photo credit: Aaron Winter

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HOW DOES CLIMATE CHANGE IMPACT SUBSISTENCE?

- Climatic threats will impact harvest of wildlife resources
  1. Changes in the salmon harvest
     - Timing and volumes of fish migrations
  2. Changes in the distribution & amount of wildlife
     - Change in migratory animals
  3. Changes in Forestry habitat
     - Decline in Yellow Cedar
     - Changes in vegetation
     - Timing of berries, and other subsistence plants