

Southeast Drought Workshop: Streams, forests and coastal ecosystems

May 7, 2019



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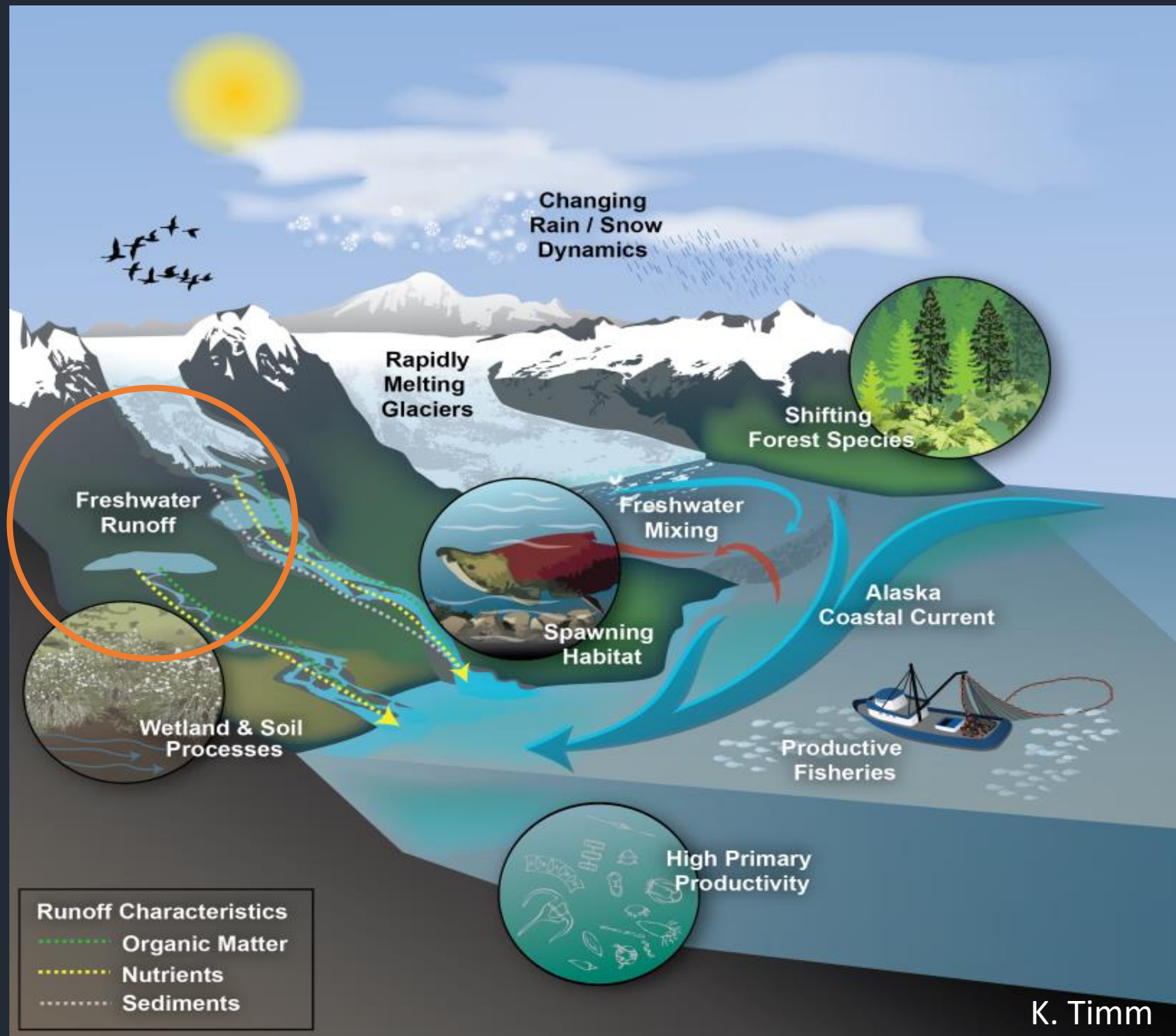
US Forest Service

Long-term trends in precipitation regimes and temperatures

- less snow, more rain
- more precipitation falling in winter
- drier, hotter summers

And natural climate variability within and between years driven by large-scale climatic drivers in the North Pacific

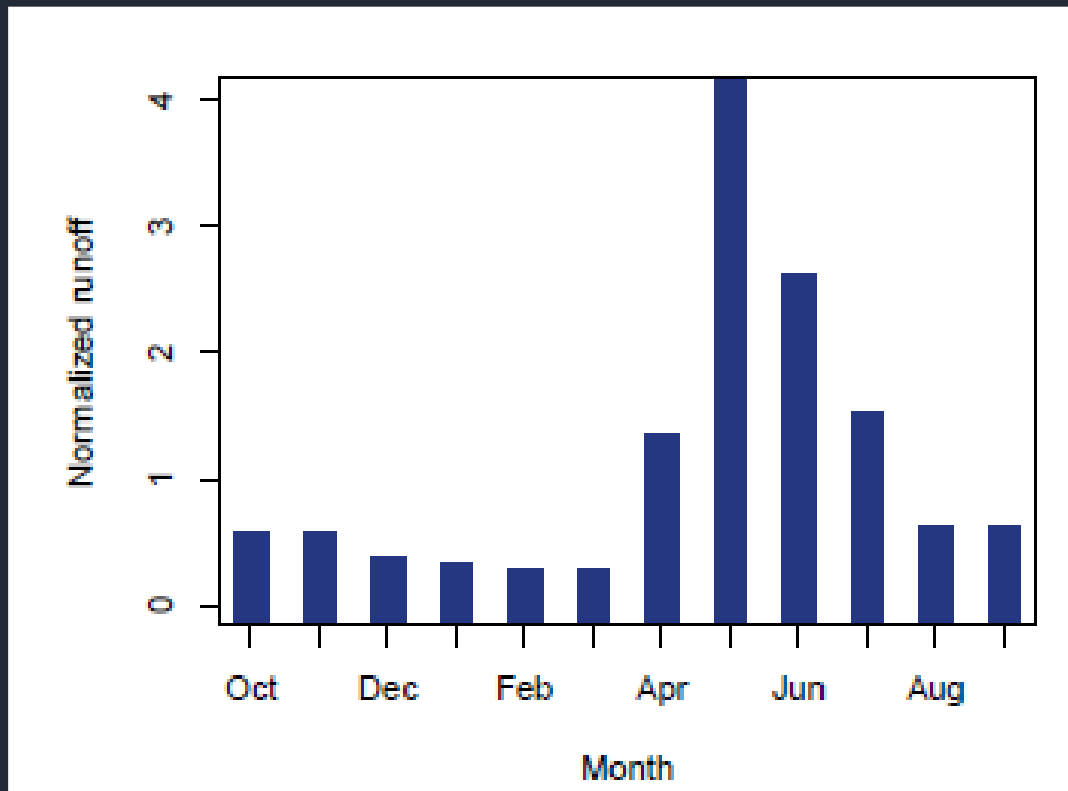
Are leading to drought conditions in both winter and summer with high spatial variability across SE AK



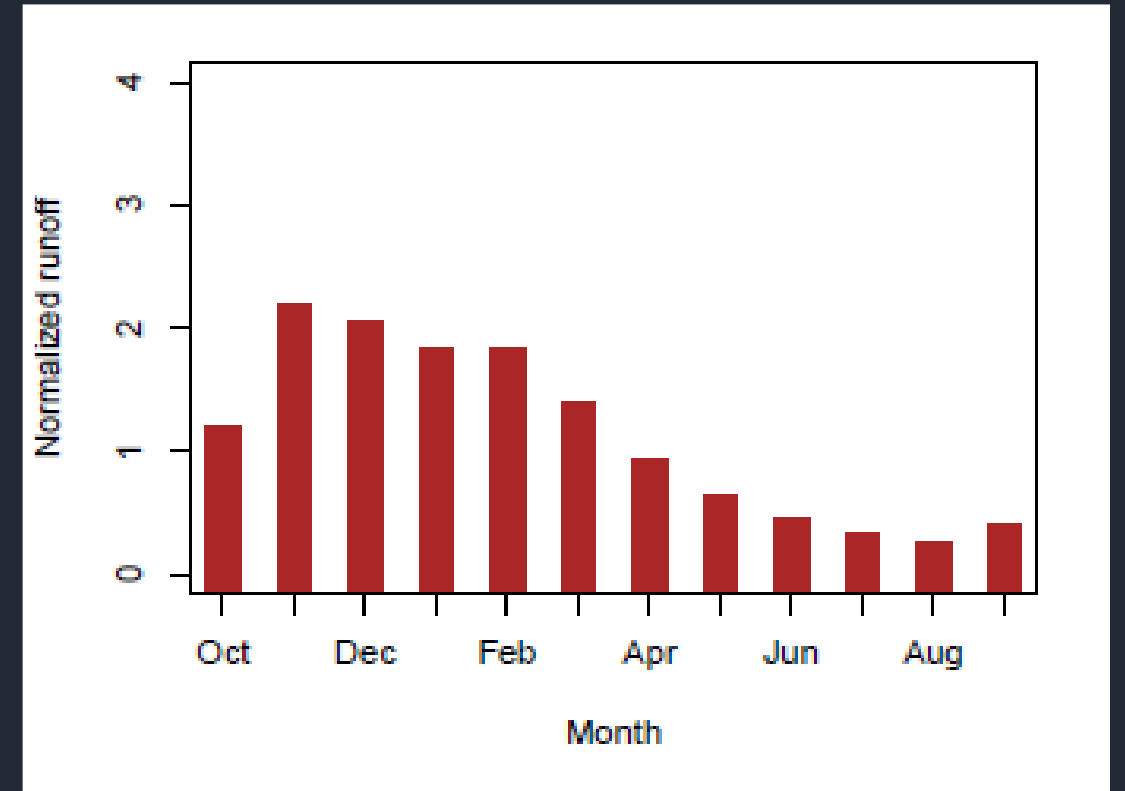
K. Timm

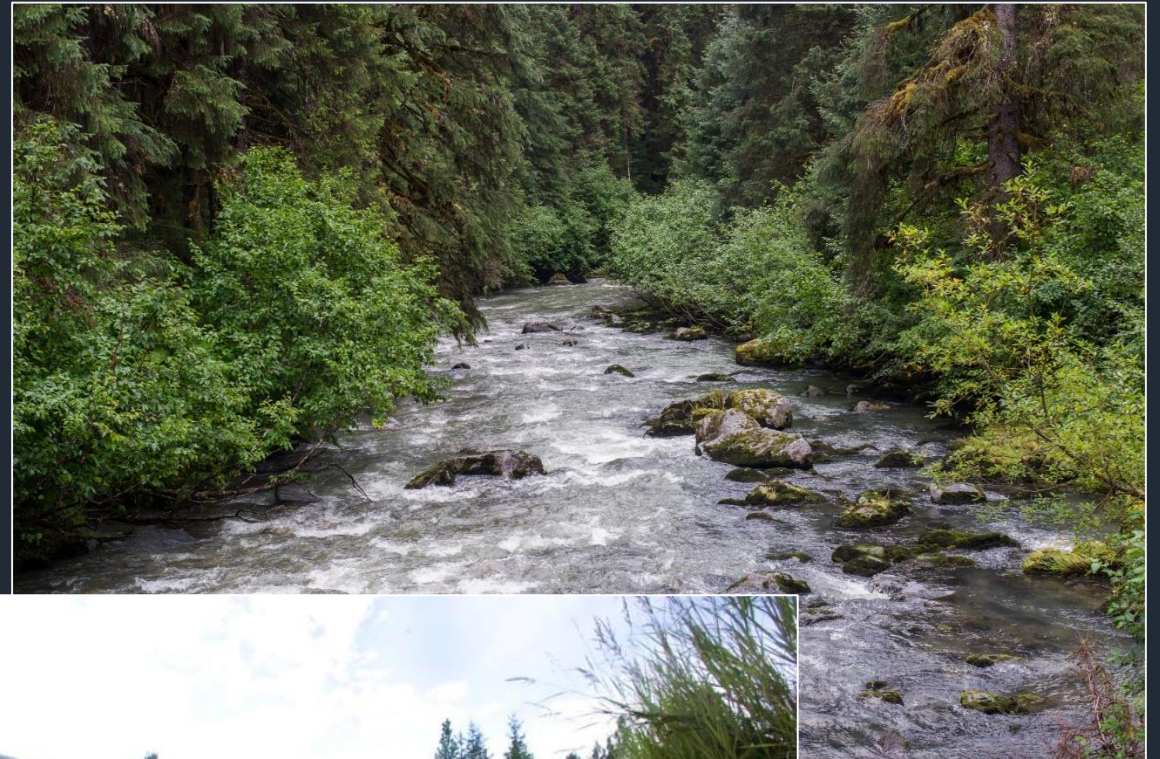
Idealized hydrographs

Snow-dominated



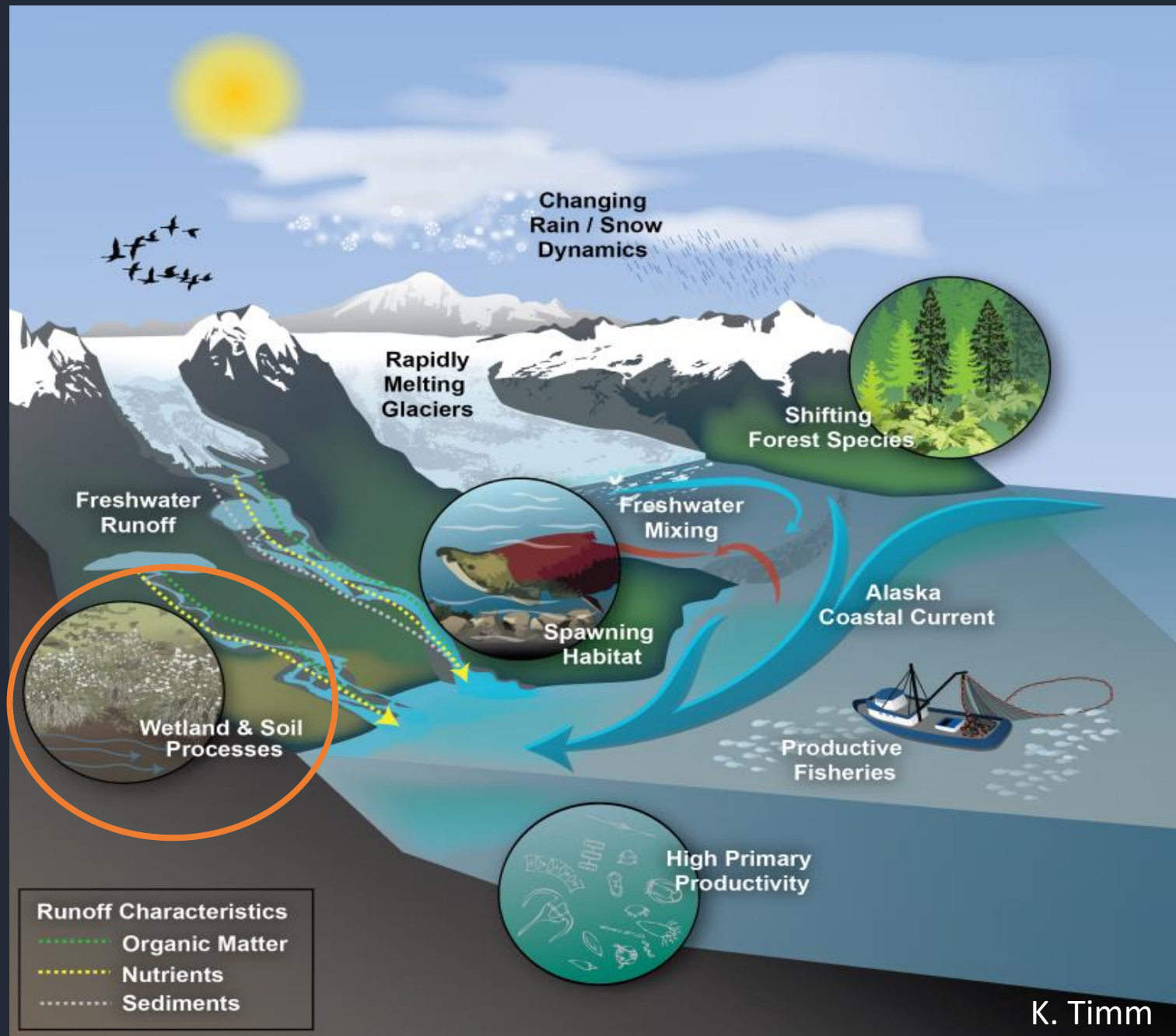
Rain-dominated





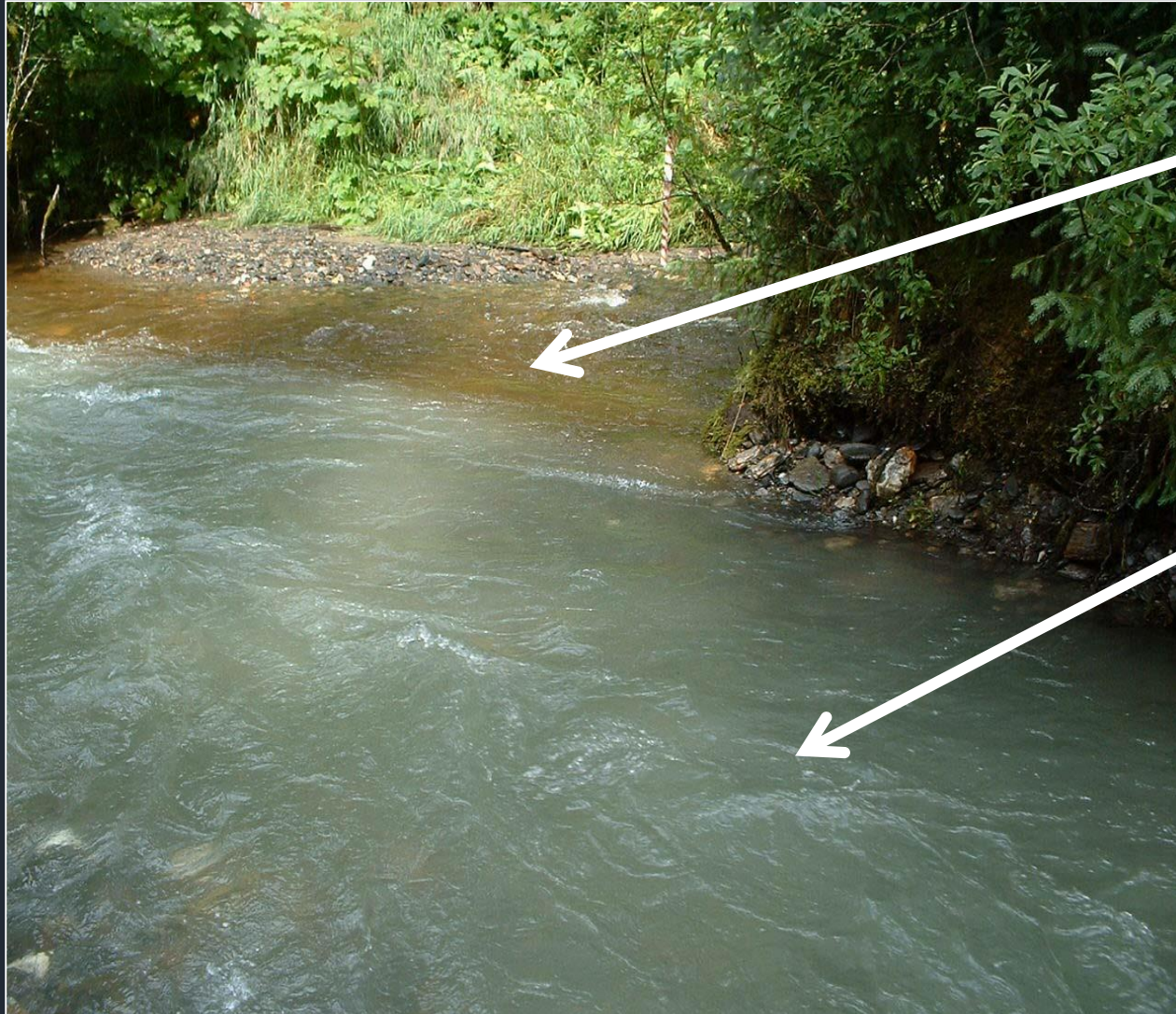
Stream flows and temperature affect salmon run timing, spawning success, and juvenile survival

W. Owen



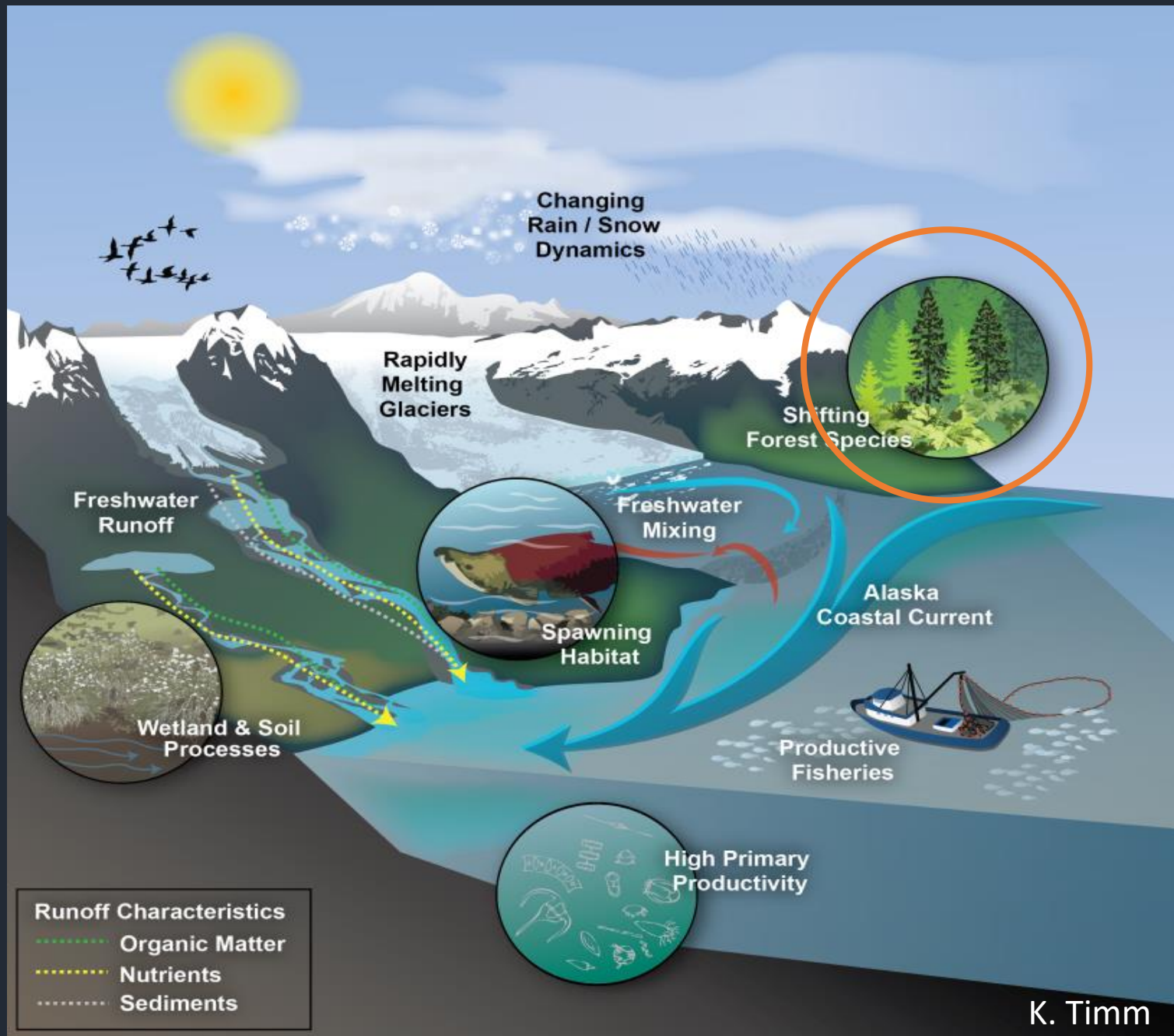
K. Timm

Stream chemistry changes following a storm event



Brownwater runoff from peatland

Cold, silty glacier stream



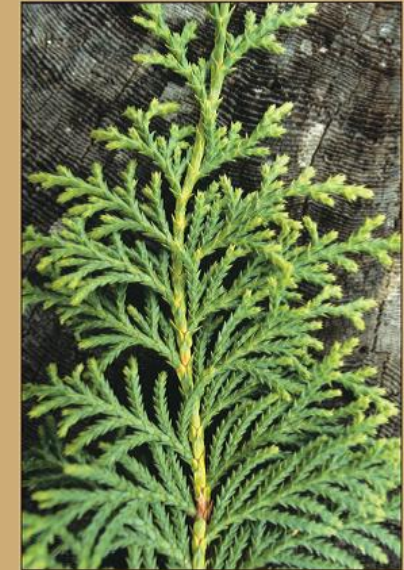
K. Timm

Yellow-cedar decline



A Climate Adaptation Strategy for Conservation and Management of Yellow-Cedar in Alaska

Paul E. Hennon, Carol M. McKenzie, David V. D'Amore, Dustin T. Wittwer, Robin L. Mulvey, Melinda S. Lamb, Frances E. Biles, Rich C. Cronn

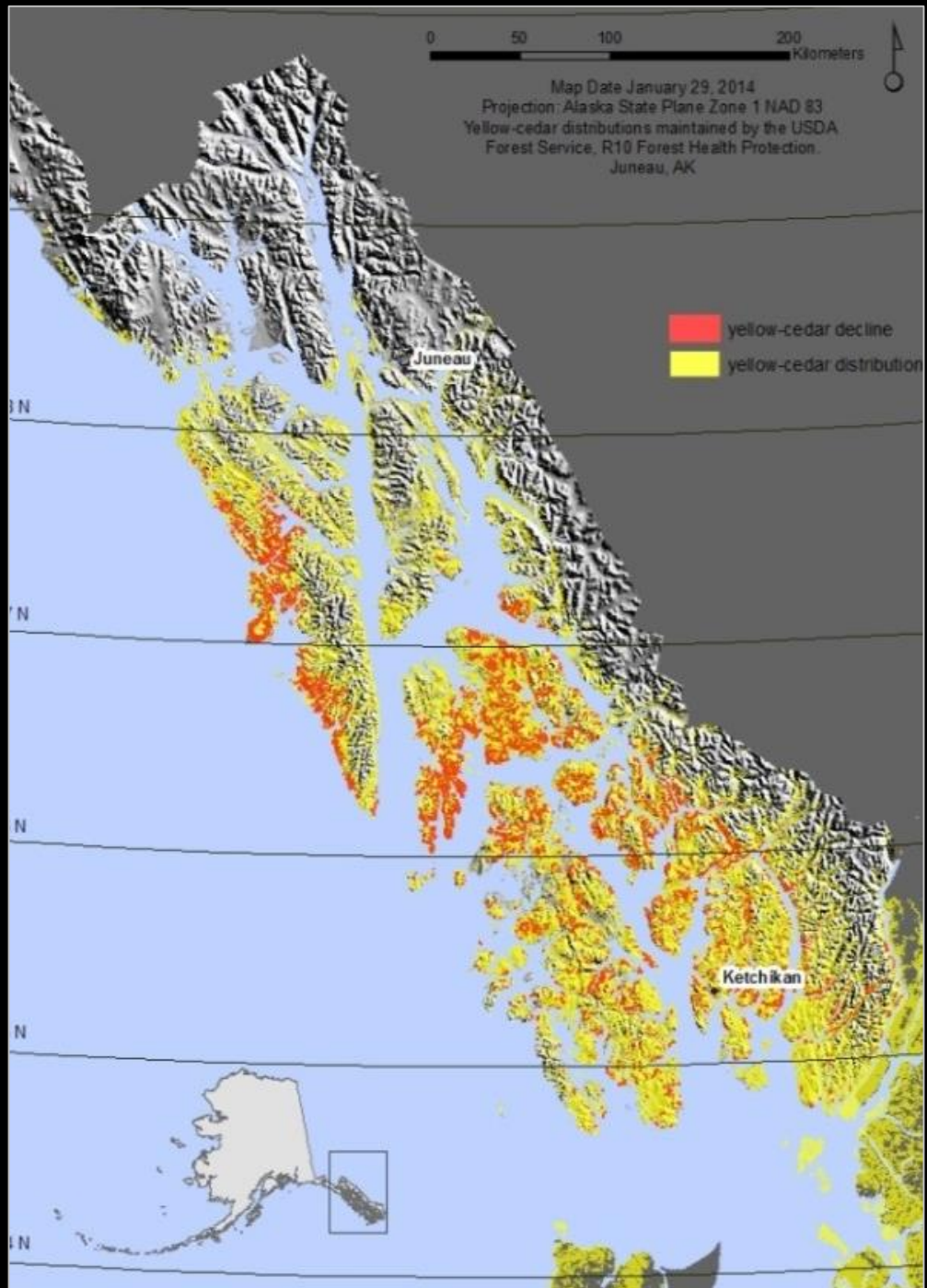


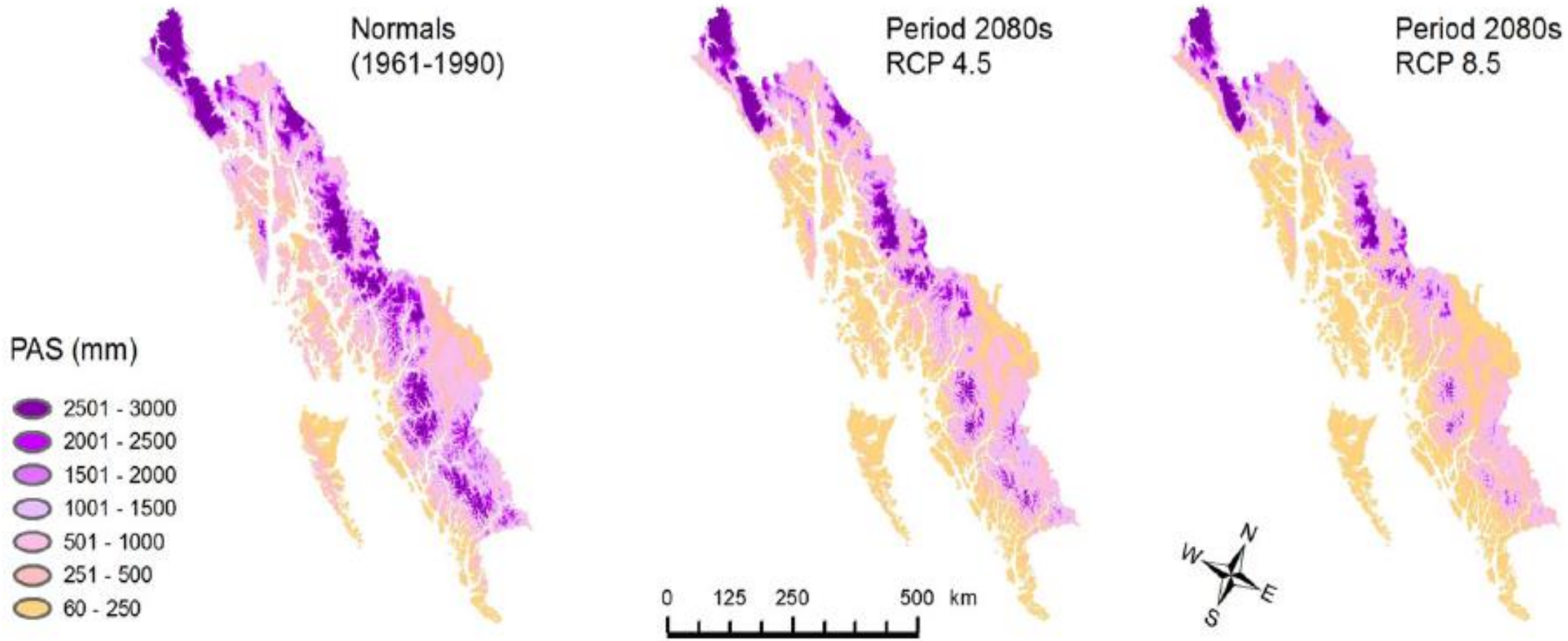
Forest
Service

Pacific Northwest
Research Station

General Technical Report
PNW-GTR-917

January
2016



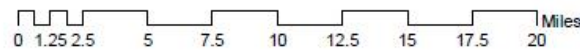
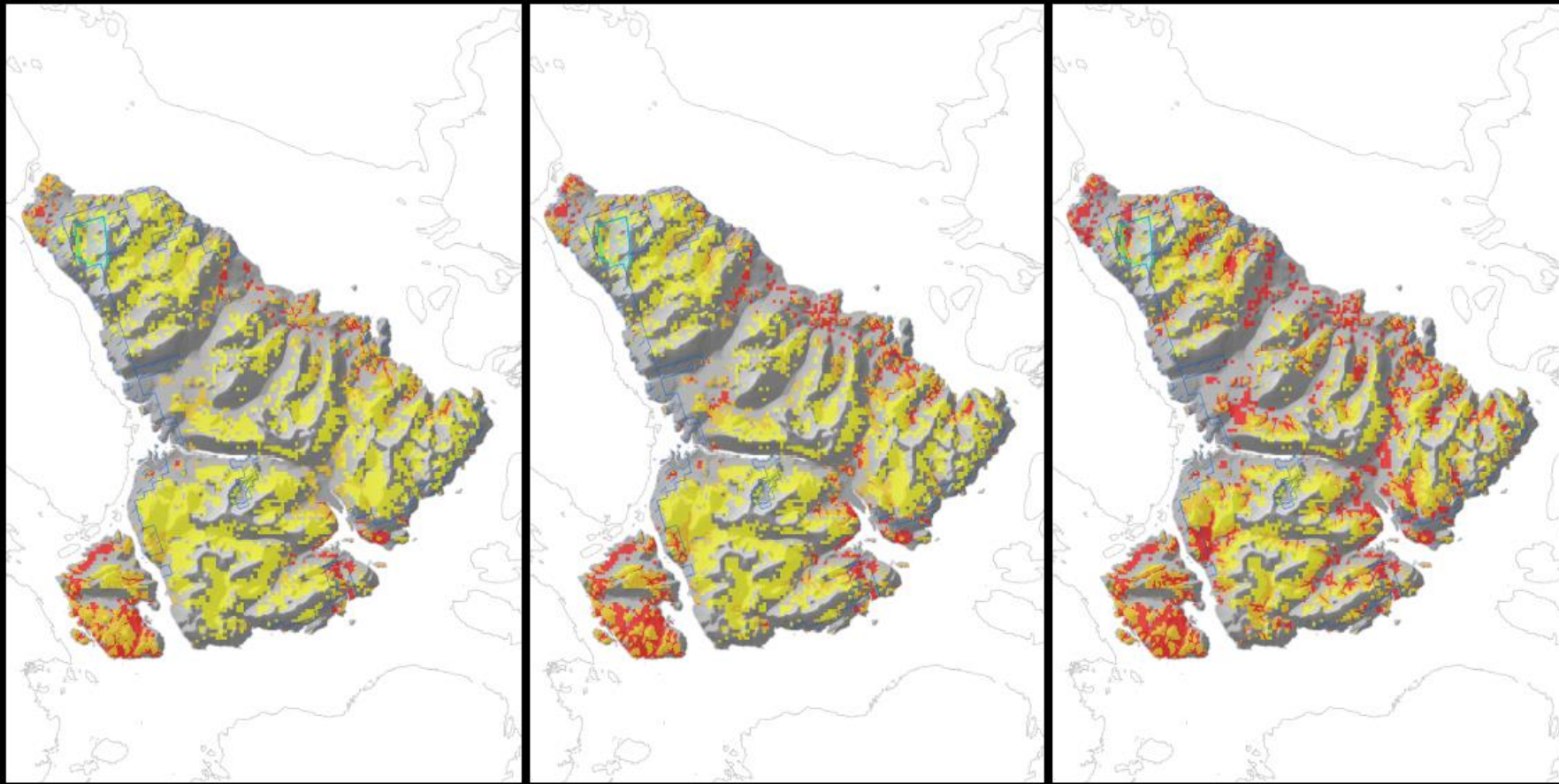


From Shanley et al., 2015, *Climatic Change*

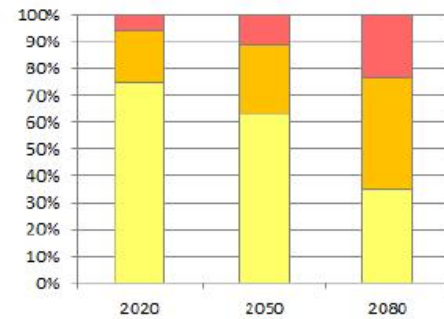
2020

2050

2080



Mitkof Island



Cedar Vulnerability

High

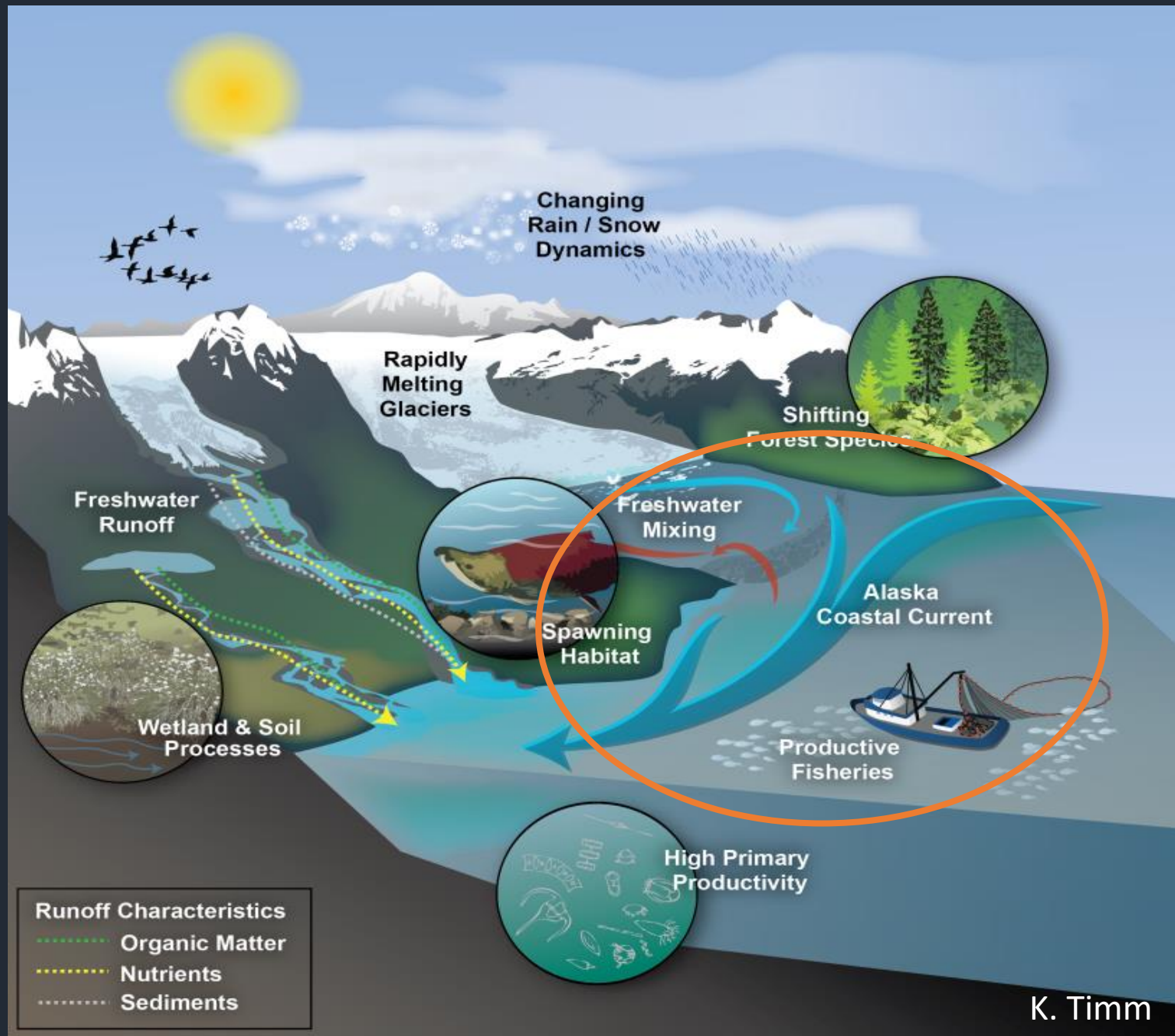
Moderate

Low

Non Forest Service

Forest Service Restricted Class





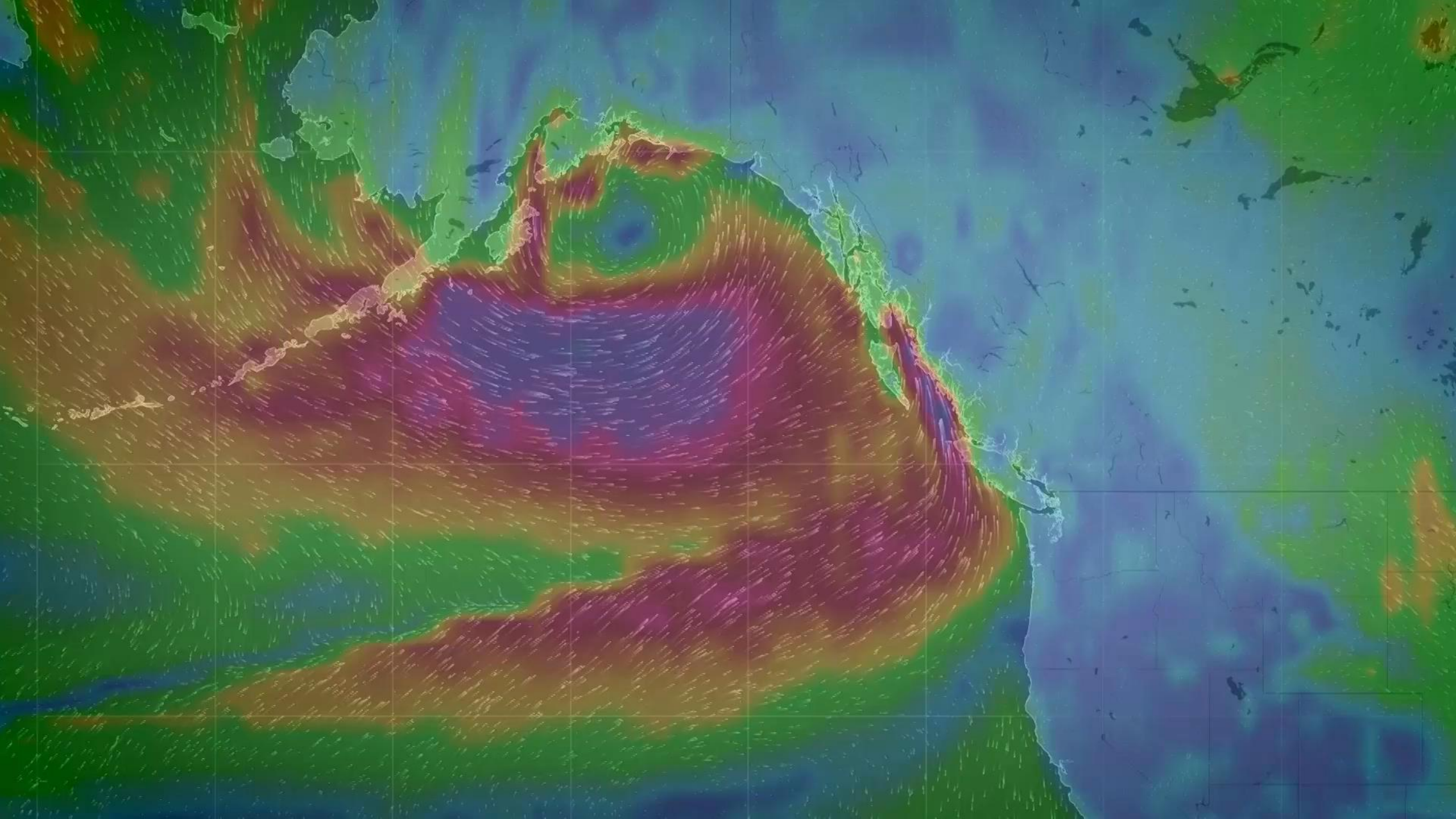
K. Timm

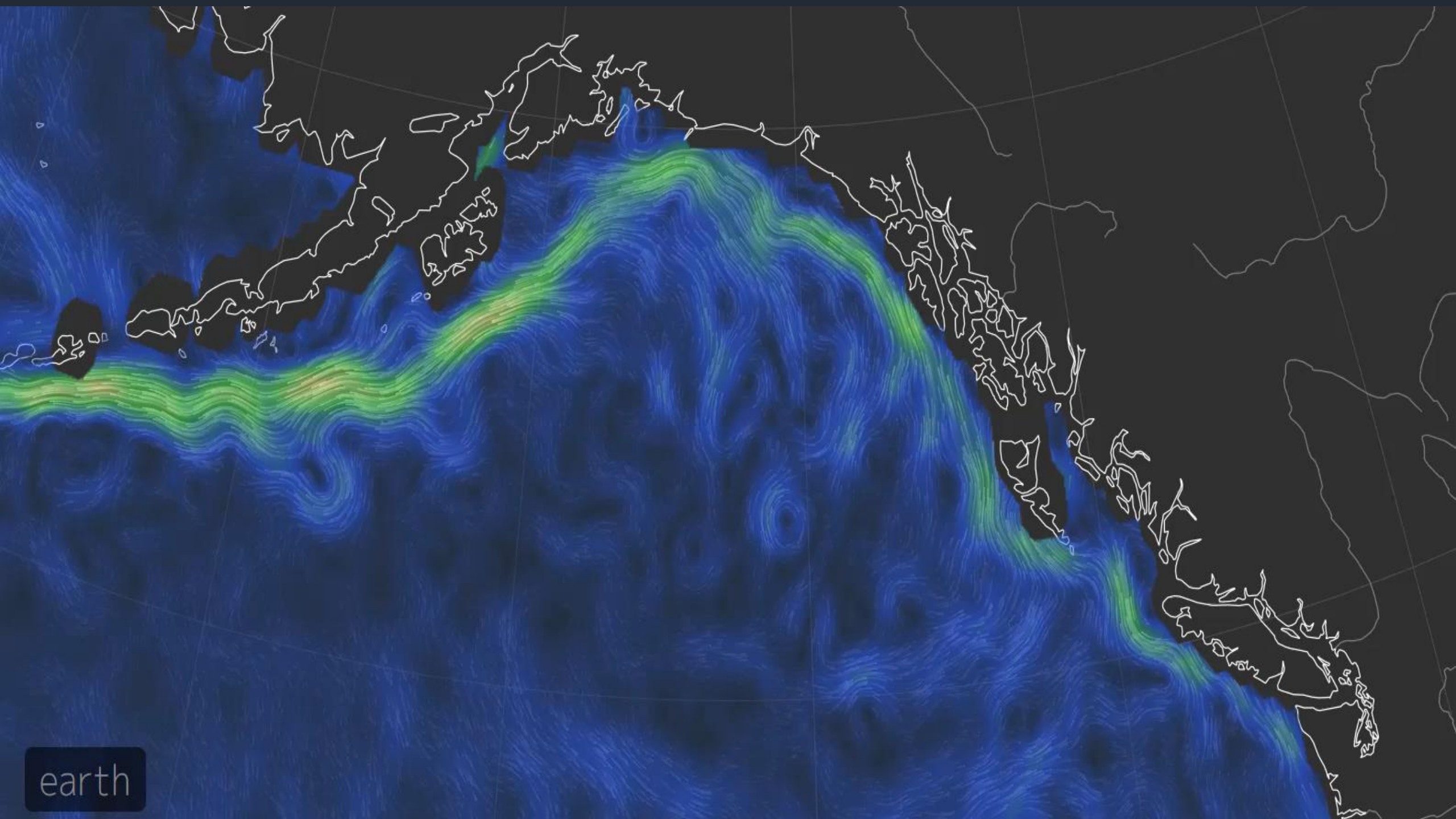


Dave Partee, Alaska Sea Grant

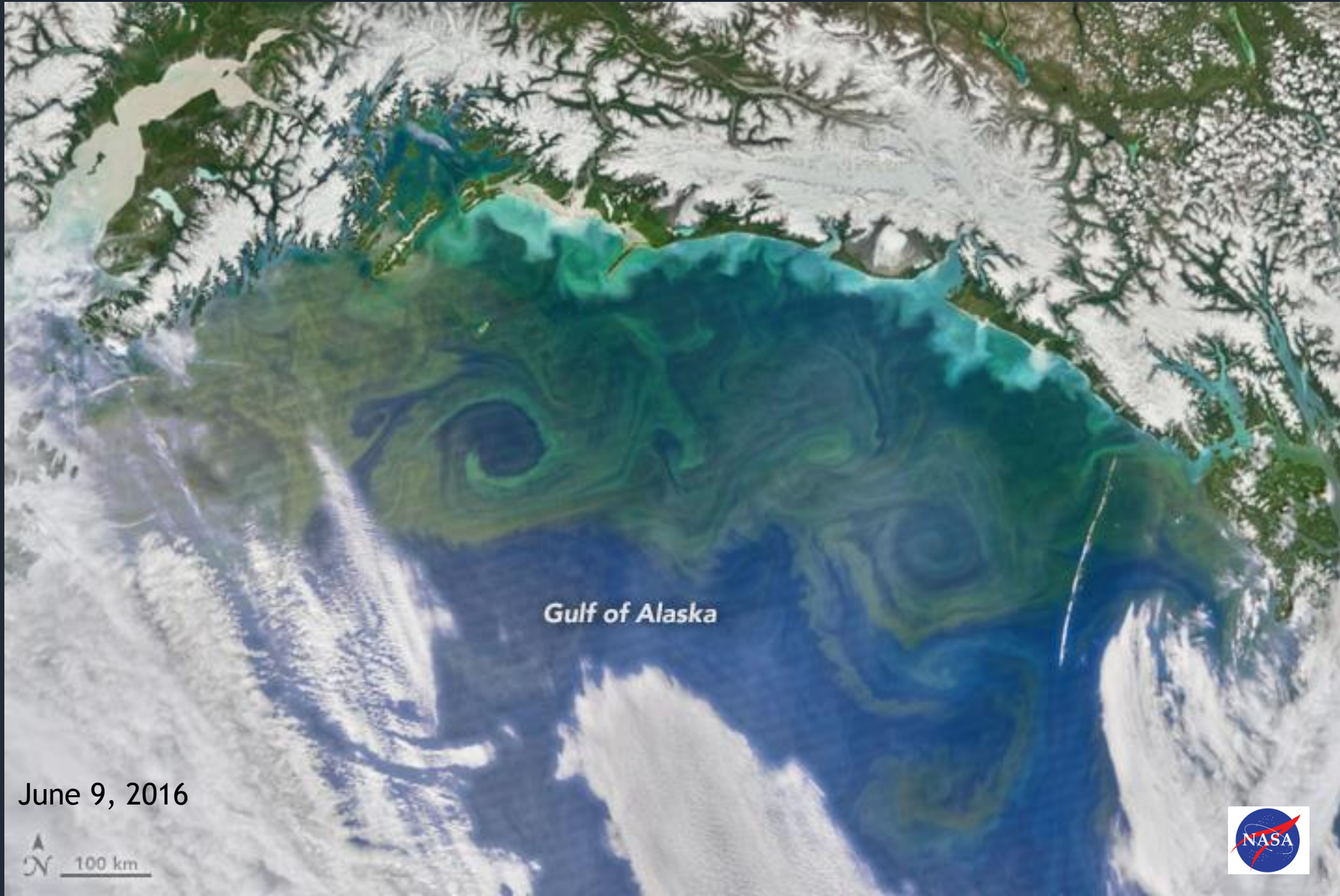
Harmful algal blooms correlated with

- sea surface temperature
- salinity
- freshwater discharge





earth



Gulf of Alaska

June 9, 2016

▲
N 100 km

