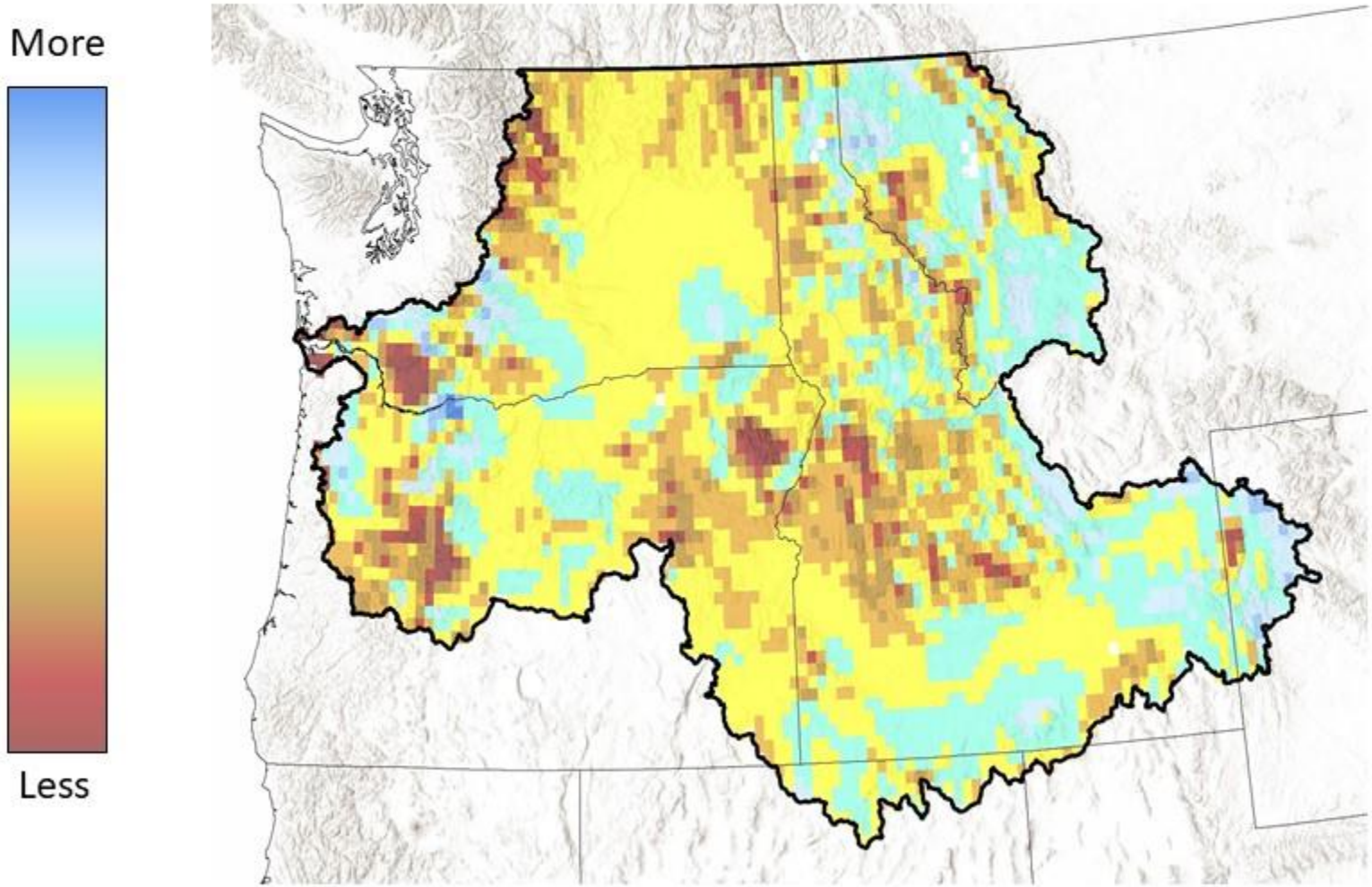
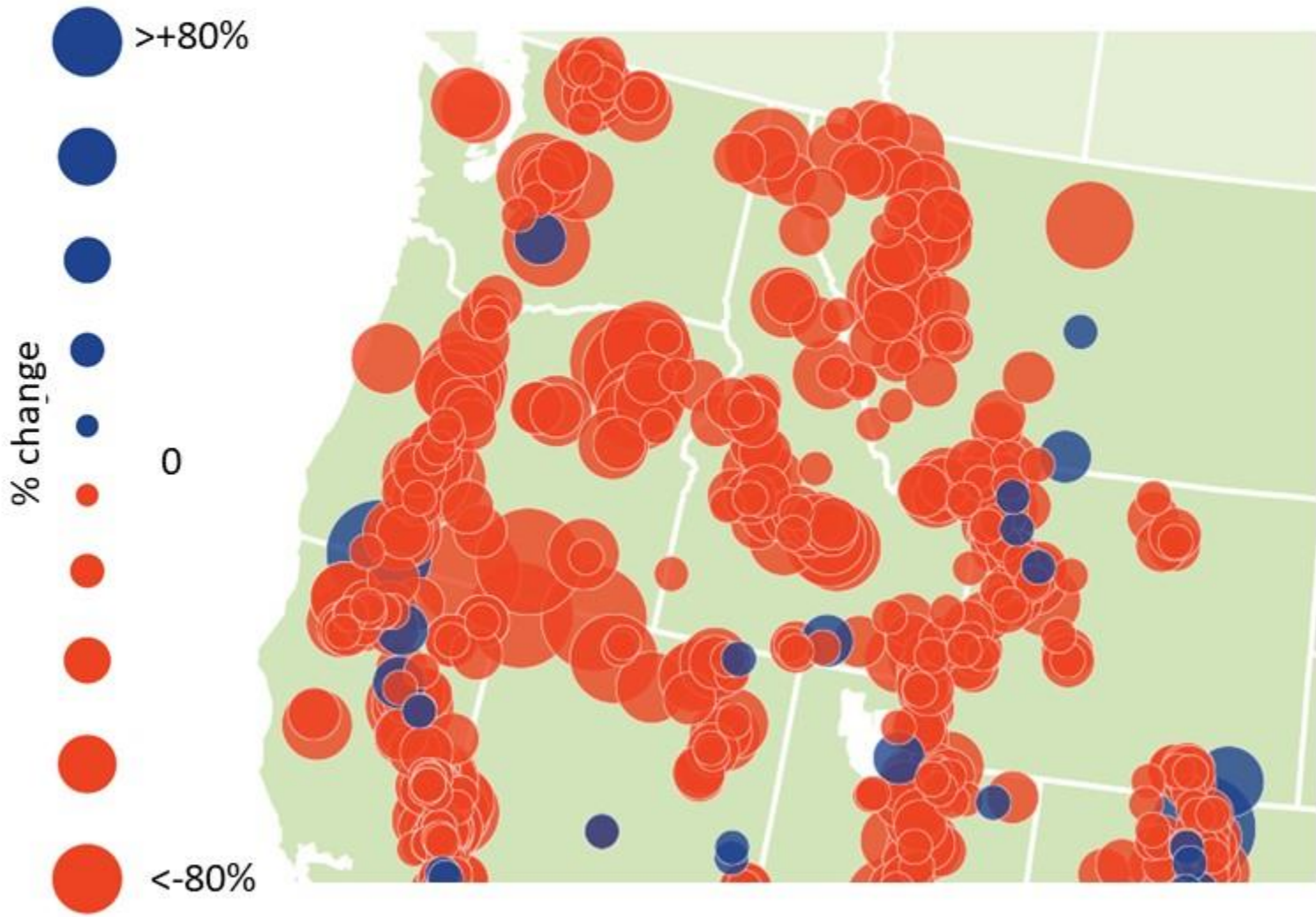

Our Climate and
Ocean are
Changing

SINCE 1980



Annual Precipitation patterns have changed

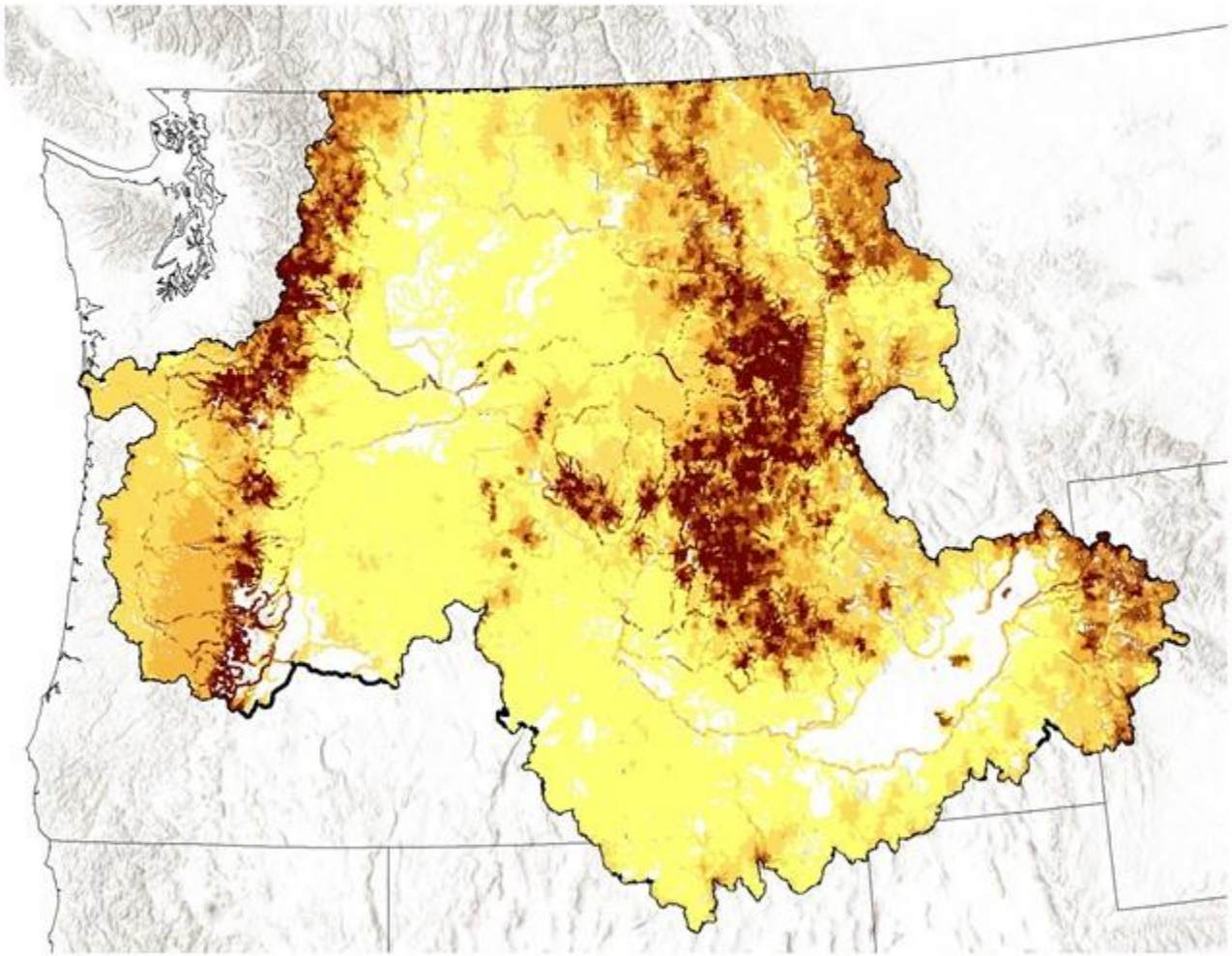
SINCE 1955



Snowpack patterns have changed


LESS
SNOW
MORE
RAIN

BY 2040



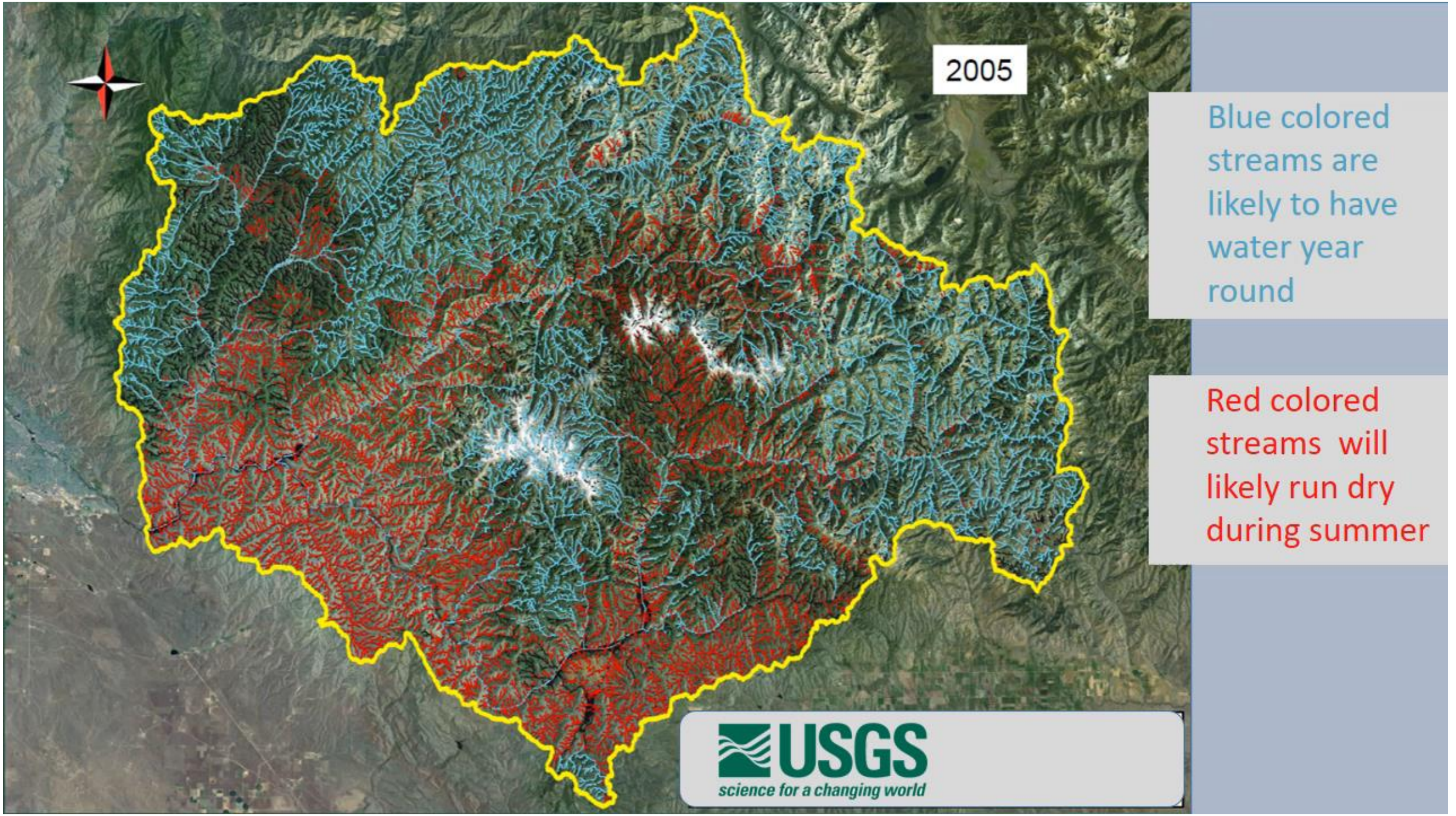
Decreased summer flows in Mountain Areas

- >+1 - 10%
- -19.9% - -10%
- -29.9% - -20%
- -39.9% - -30%
- -49.9% - -40%
- < -50%

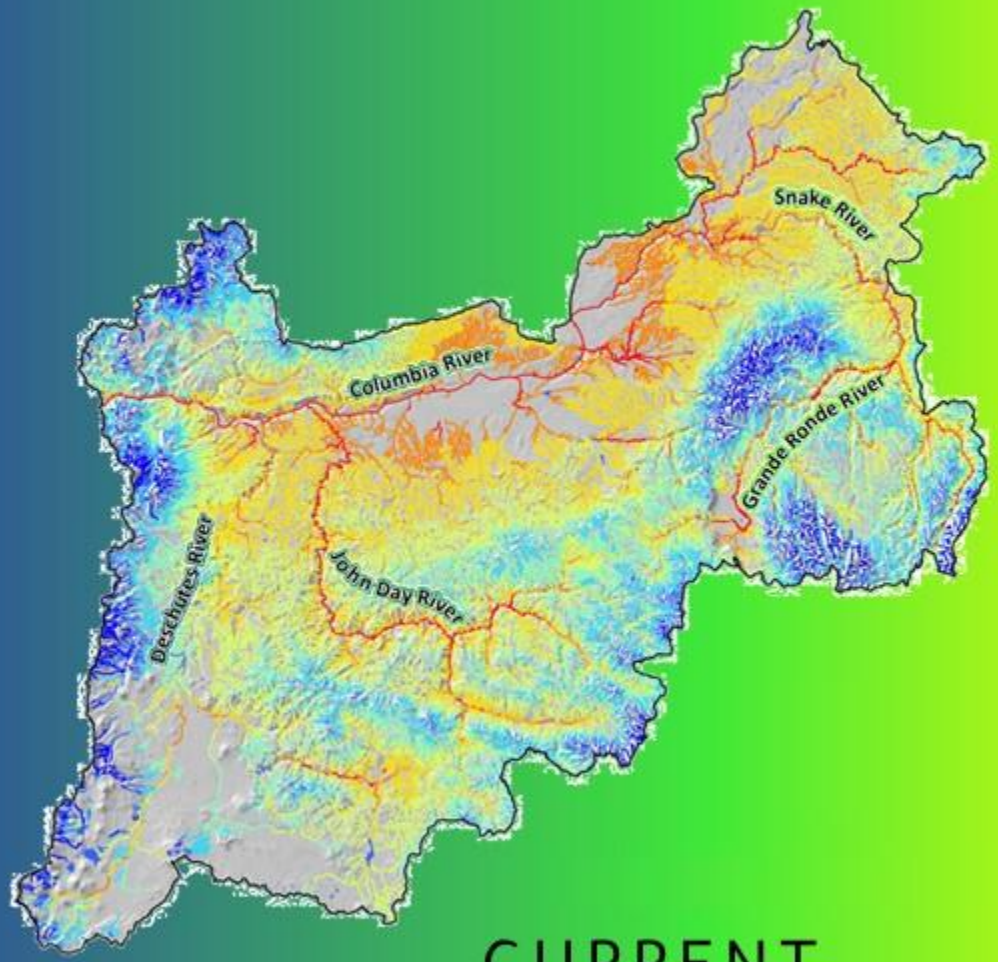

MORE
DROUGHT

~60-80% likelihood of *mega-drought in West*
by end of century

NASA

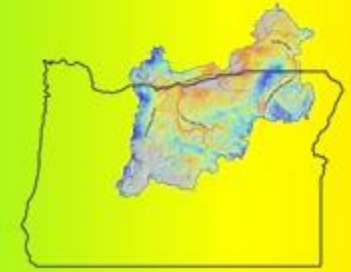

2005
Blue colored streams are likely to have water year round
Red colored streams will likely run dry during summer
USGS
science for a changing world

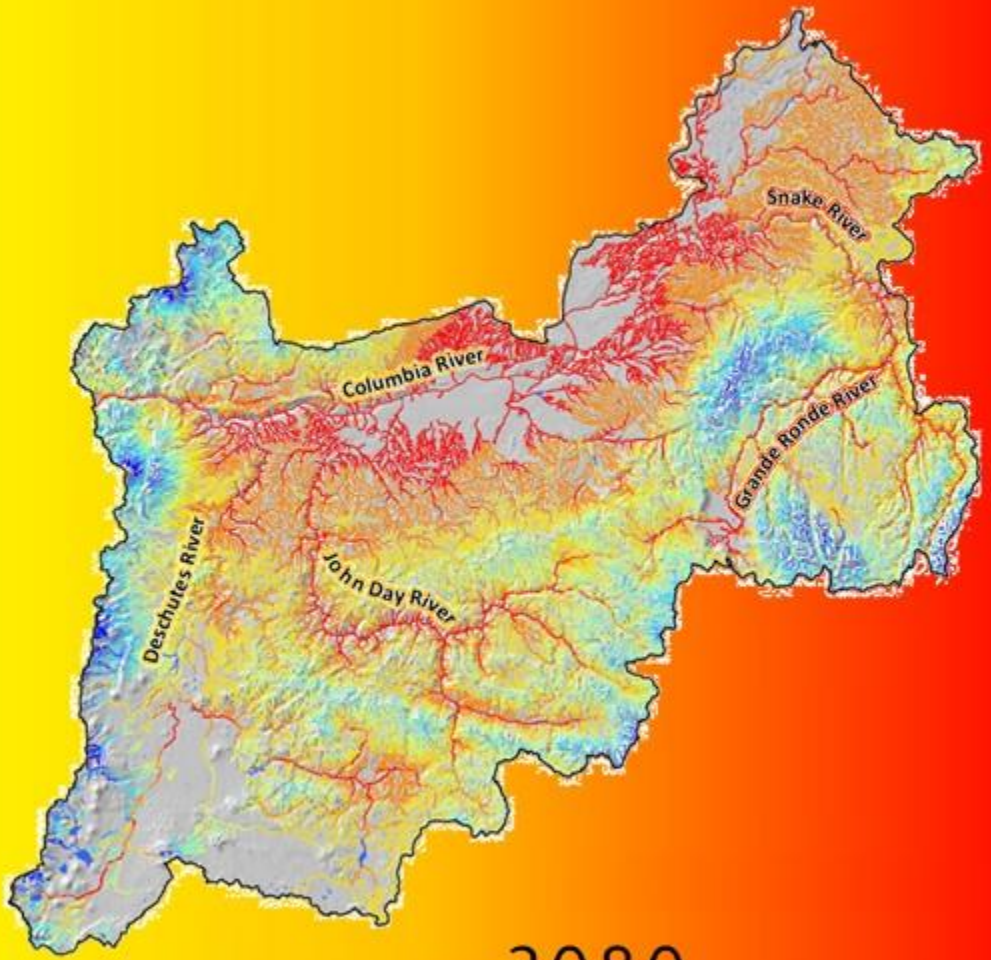
WARMER RIVERS



20°C

8°C

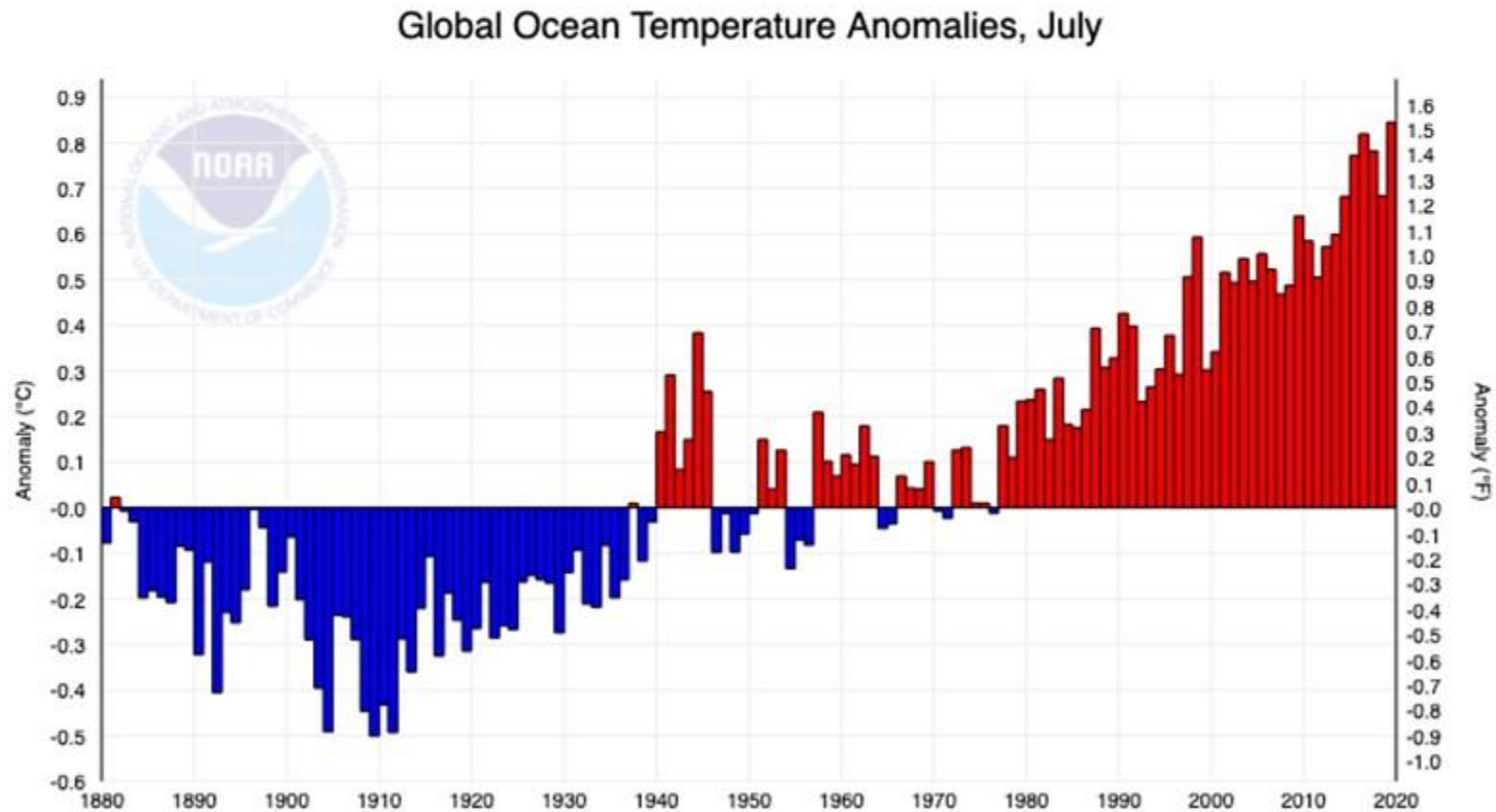




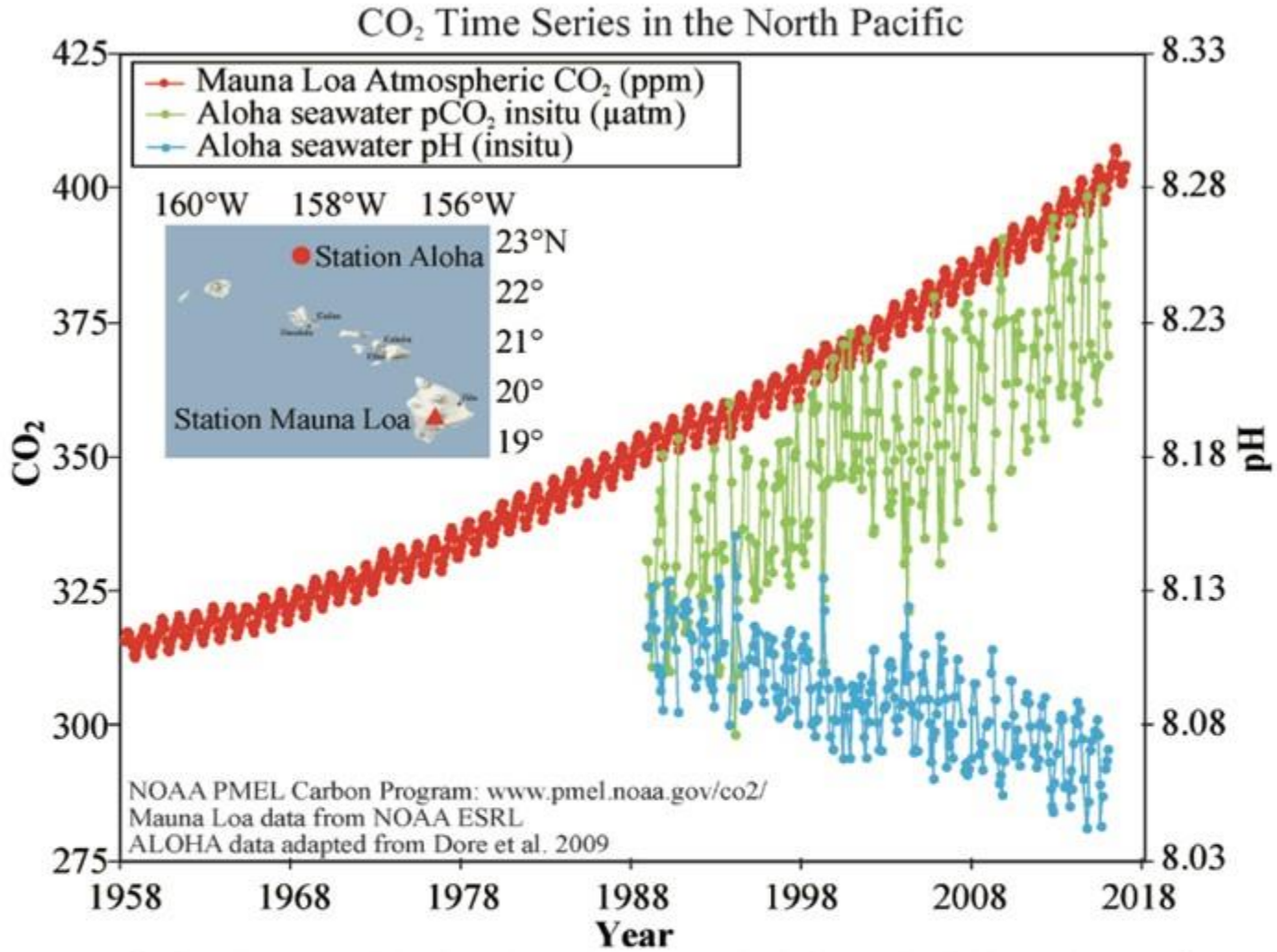
CURRENT

2080

WARMER OCEAN

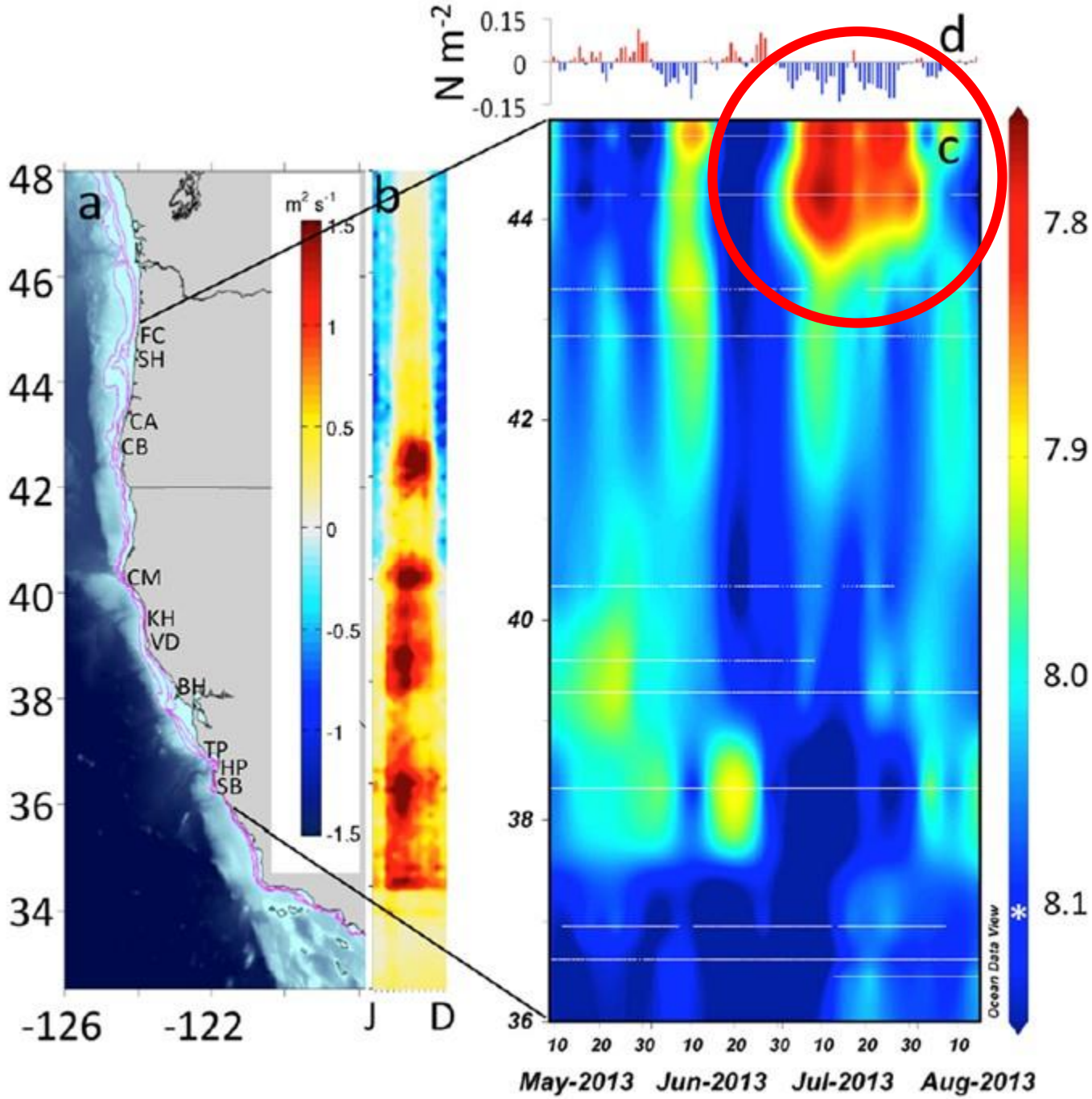


OCEAN ACIDIFICATION



Data: Mauna Loa (ftp://aftp.cmdl.noaa.gov/products/trends/co2/co2_mm_mlo.txt) ALOHA (http://hahana.soest.hawaii.edu/hot/products/HOT_surface_CO2.txt)
Ref: J.E. Dore et al, 2009. Physical and biogeochemical modulation of ocean acidification in the central North Pacific. *Proc Natl Acad Sci USA* **106**:12235-12240.

OREGON ON THE FRONTLINE



BROAD IMPACTS

FISH & WILDLIFE

Fires, warming streams, drought, algal blooms, ocean acidification will collectively push our species closer to the edge

INFRASTRUCTURE

More frequent and intense fires and flooding as well as sea level rise pose risks to buildings, docks, etc.

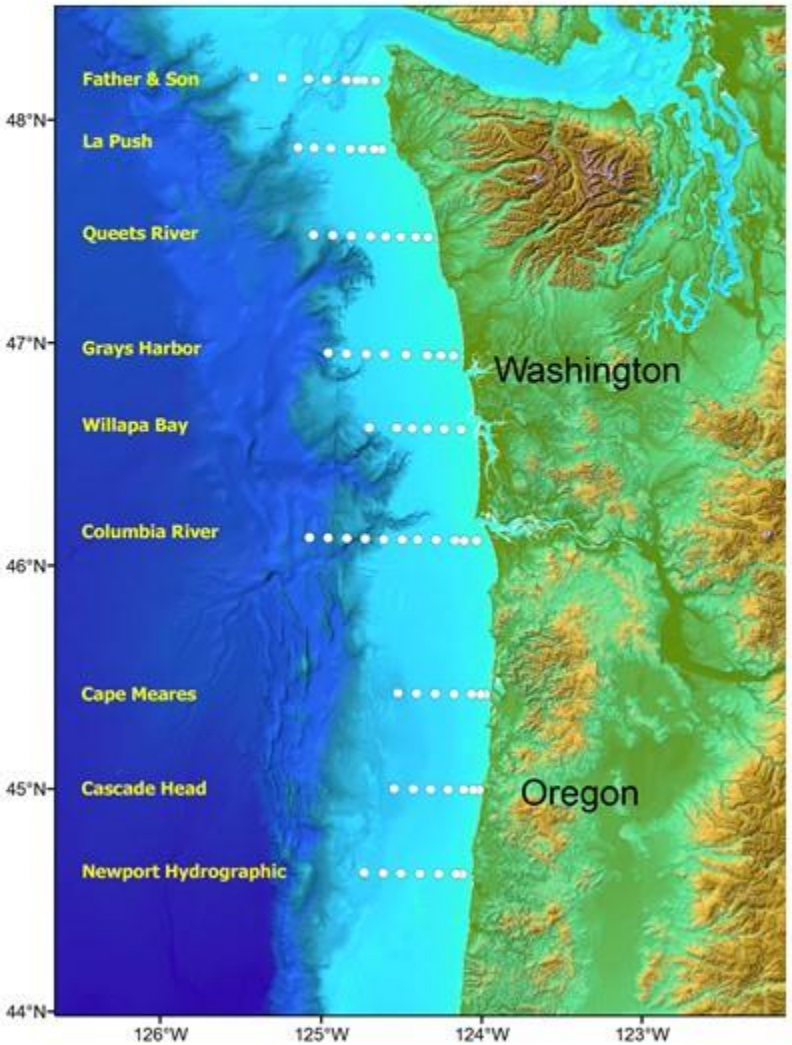
JOBS

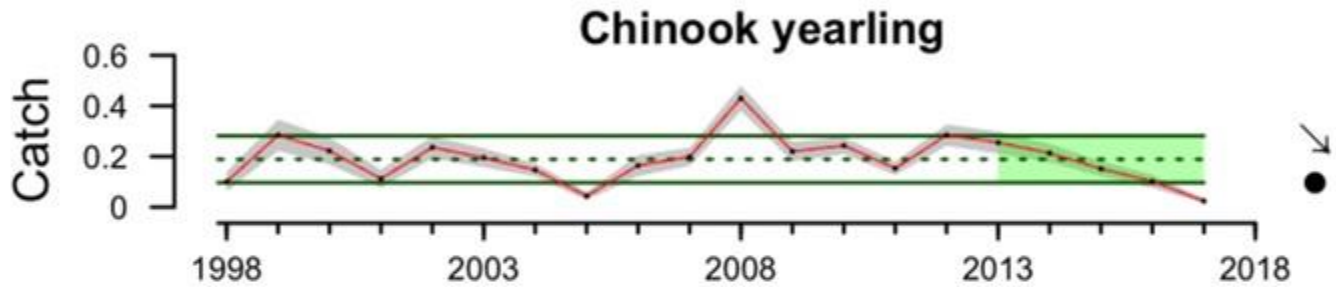
Tens of thousands of jobs in the recreation, tourism, fishing/hunting, and sectors rely on Oregon's natural resources

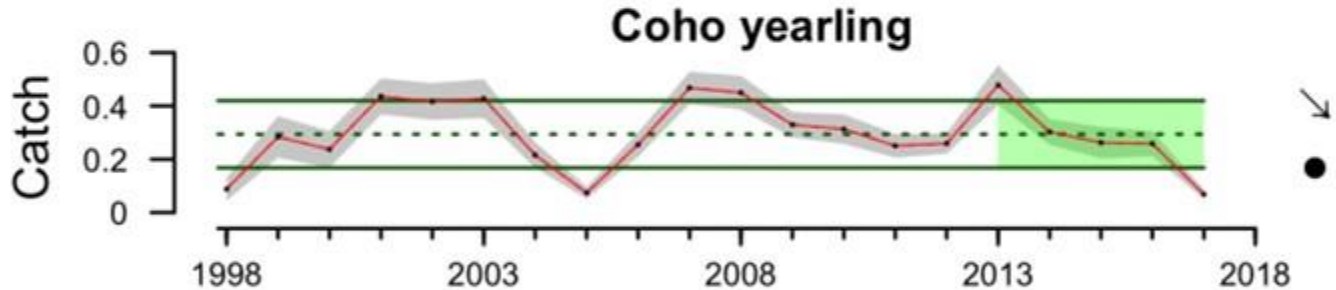
THE BOTTOM LINE: Climate and ocean change impacts will cost the State billions of dollars in lost opportunity and rebuilding after impacts occur and threatens existence of many species we care about


MORE COMMON
ACUTE MORTALITY

GROCERY SHORTAGES







LOWER SURVIVAL

TIPPING POINTS

SPECIES ON THE MOVE


MORE DISEASE
USGS

ODFW ACTIONS

- Research & Monitoring
- Fisheries Management
- Conservation Planning
- Habitat Prioritization
- Infrastructure Resiliency
- Interagency Coordination
- Strategic plan-focal team

CLIMATE AND OCEAN CHANGE POLICY

PHOTO: PAUL VECSEI

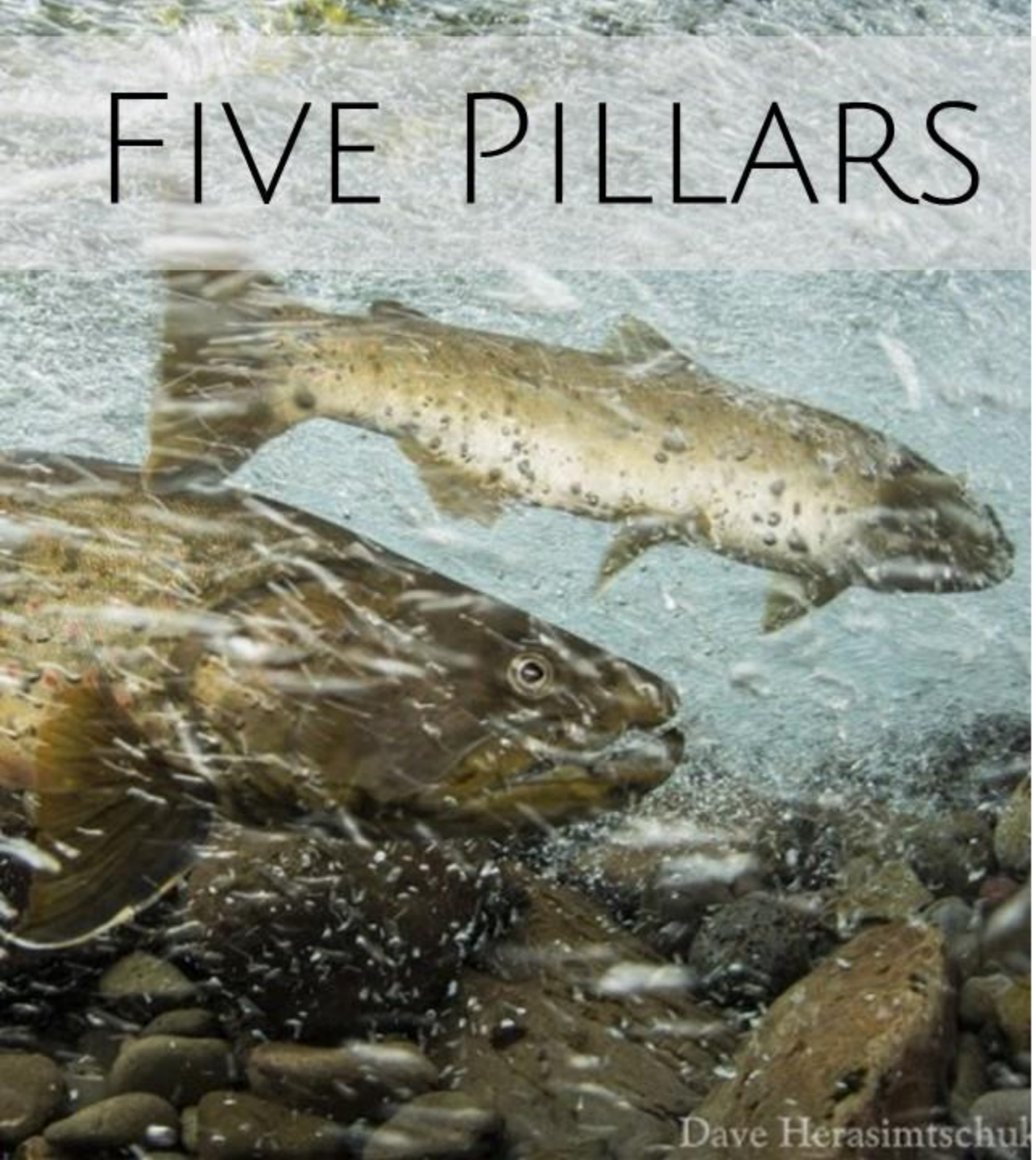
VISION

Through science and proactive leadership to address a changing climate and ocean, ODFW and Oregon:

a) Understand the impacts
b) Determine the most appropriate actions;
c) Work collectively to enhance preparedness
d) Strive toward carbon-neutral operations.

As a result, Oregonians have healthy natural areas that provide clean air and drinking water, food, abundant fish and wildlife, support a thriving economy, and are the first line of defense against fires, droughts, floods, and sea level rise associated with a changing climate and ocean.

Five Pillars



Statewide coordination

Science

Resource Management

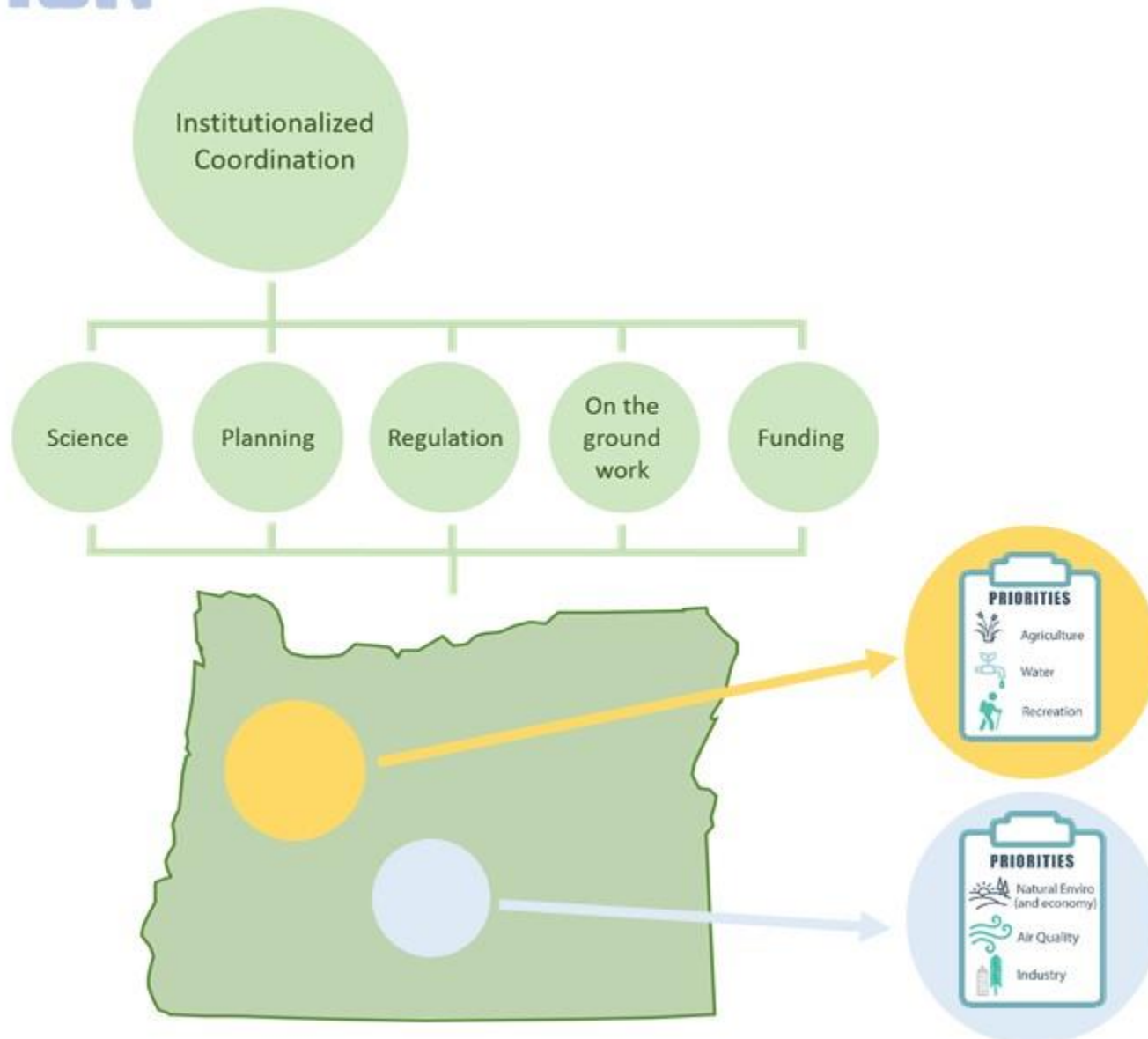
Operations

Communication & Education


Good habitat is the *foundation of healthy* fish and wildlife populations
PHOTO: PAUL VECSEI

STATEWIDE COORDINATION

- Coordinated inventories and vulnerability assessment
- Efficient research and monitoring
- Determine clear priorities within and across geographical areas
- Implement priorities



COLUMBIA RIVER

PASSAGE AND HABITAT

Oregon has a long history of investing in the recovery of these fish

- Mainstem survival via spill
- Tributary Habitat Restoration

FISHERIES

Protect and enhance Oregon's fish and wildlife and their habitats for *use and enjoyment by present and future generations.*

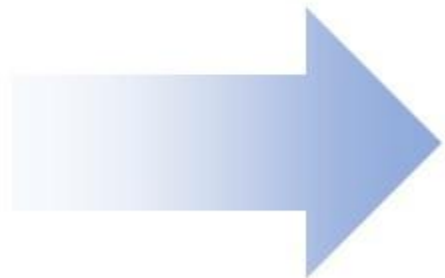
SUSTAINED BY HATCHERIES

- Production is mitigation for impacts of dams
- Incidental impact on wild fish is constrained by ESA
    - 2% on Spring Chinook & Summer Steelhead
- ODFW manages in partnership with Tribal/Fed/State

RESPOND ADAPTIVELY

- Take into account physical conditions (flow/temps) that might impose additional mortality on wild fish

- Range of tools
  - Rolling retention closures
  - Outright closures
  - Angling sanctuaries



WITHOUT UN-NECESSARILY TAKING AWAY OPPORTUNITY

HIGH TEMPERATURE
LOW FLOWS
LOW POPULATION SIZE

Emergency fishing closures kick in Saturday

BY MARK FREEMAN MAIL TRIBUNE | July 16, 2015

Click for Maps and Directions

State officials close Columbia River to all salmon fishing

by KATU.com Staff | Thursday, September 13th 2018

A spring chinook salmon (Brian Davies/The Register-Guard via AP, File)

- Thermal Angling Sanctuaries
- Climate policy
  i. Statewide Framework for Responsive Fishery Management