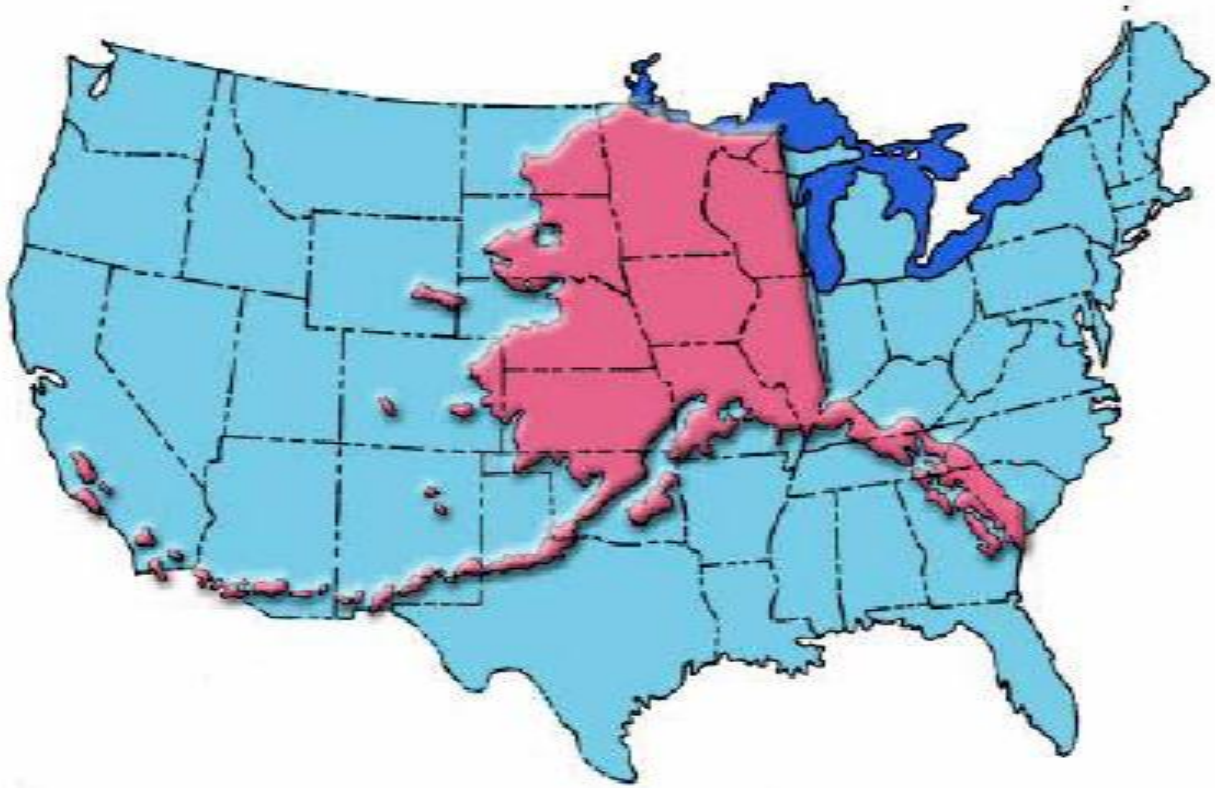
Alaska Water Management Issues and Challenges Related to Basin-Wide Water Adjudications

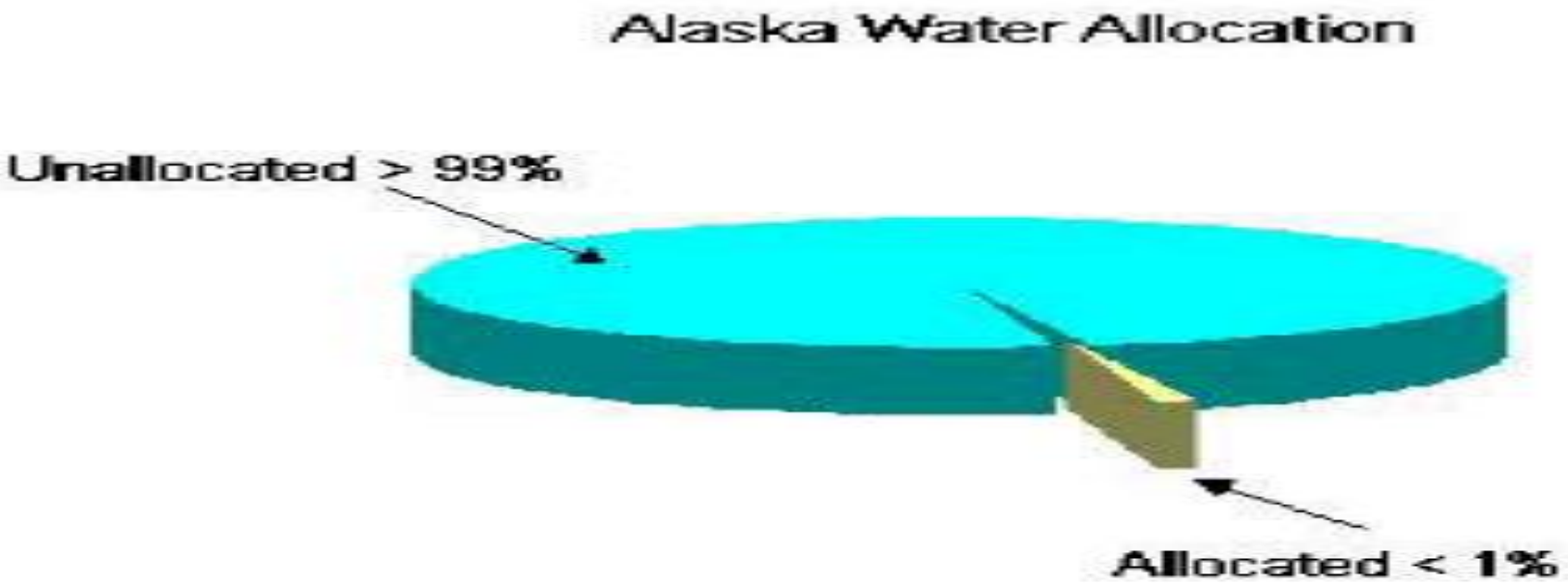
Christopher Estes, Chalk Board Enterprises, LLC
CACFA Meeting, June 1, 2012
Fairbanks, AK

Size Comparison of Alaska Versus 48 Contiguous States

Alaska's 586,000 square miles are equivalent in area to approximately 20% of the contiguous lower 48 states.



THE GOOD NEWS!



Some Water Use Purposes

Instream:

Water needed* in the water body to support vital ecological functions and uses (include lakes/reservoirs)

Examples:*

- Fish and Wildlife
- Recreation
- Navigation
- Water Quality

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* Ice conditions, too

Out of Stream:

Water removed from the system or flow regime/water volume/stage altered* (subsurface too)

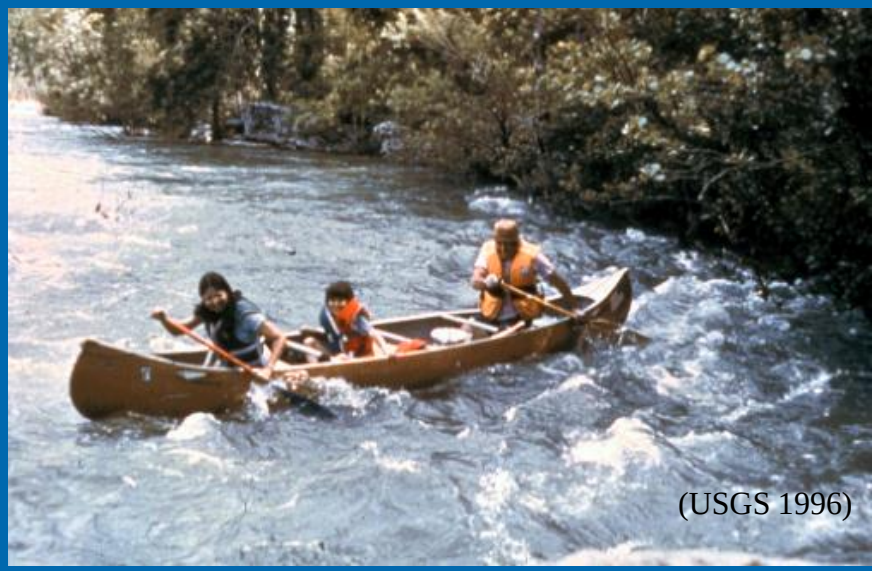
Examples*:

- Power Generation
- Domestic/Industrial
- Public/Personal Water Supply
- Irrigation
- Water Export
- Hatcheries
- Ice Roads, etc.

A Few Examples (can display other examples ice roads, mining, hydro, etc.)

John Hyde ADF&G

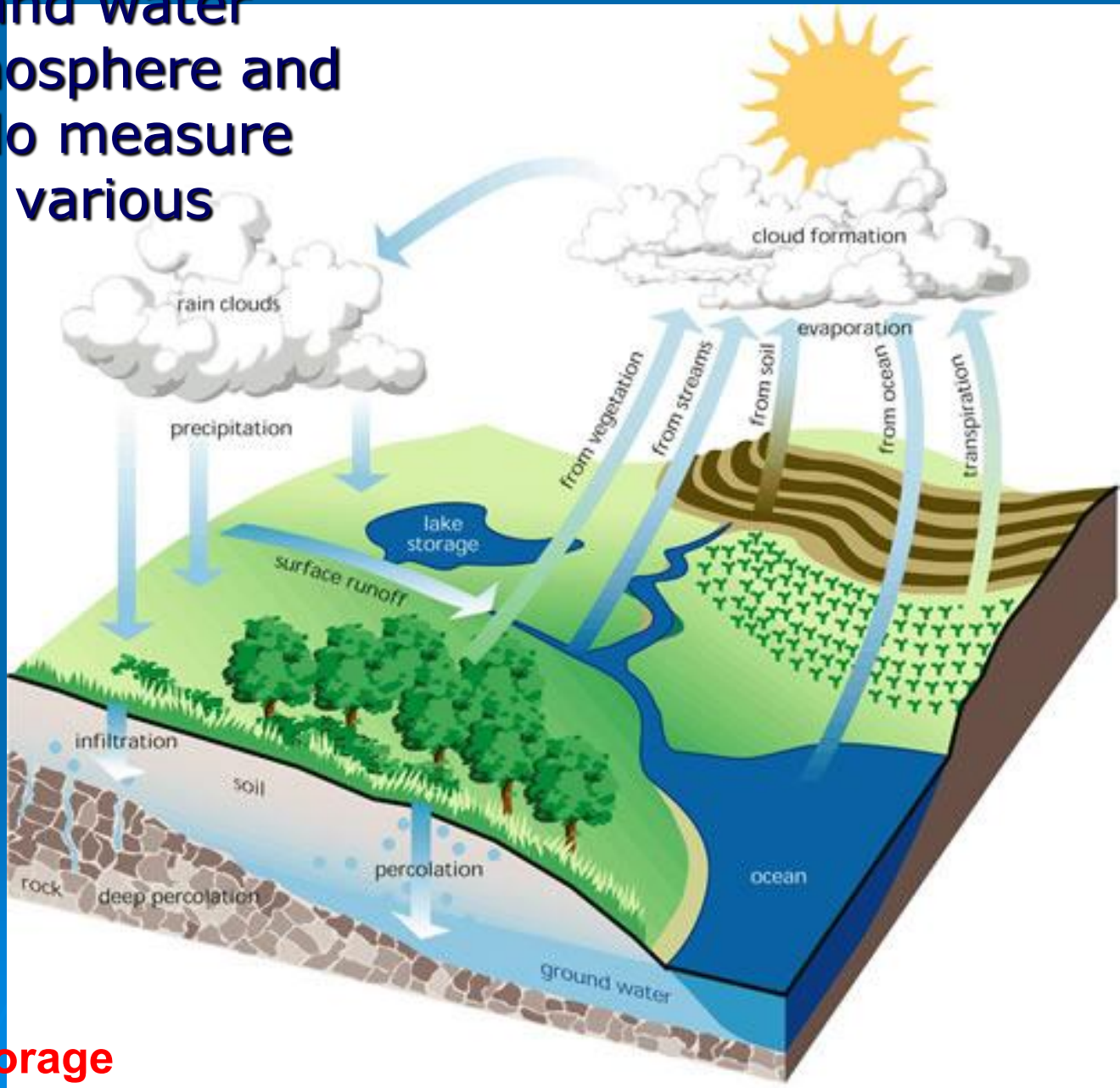
Robert Angell, AK Div. Of Tourism



(USGS 1996)

(USGS 1996)

processes and pathways involved in the circulation of water from land and water bodies to the atmosphere and back again-how do measure account for these various variables? Some examples follow-



Inputs – outputs = Δ storage

Measuring Stream Discharge/Water Level Examples

- USGS stream gaging stations collect discharge (flow) data which are compiled and published.
- These data are typically the most comprehensive source of information on the amount of discharge in a stream water and well levels
- Other state, federal and private entities also collect these and other hydrologic data.

USGS

ADNR

Challenges

-Limited Hydrologic Information ~500 or less USGS continuous flow gages

-Limited Biologic Information

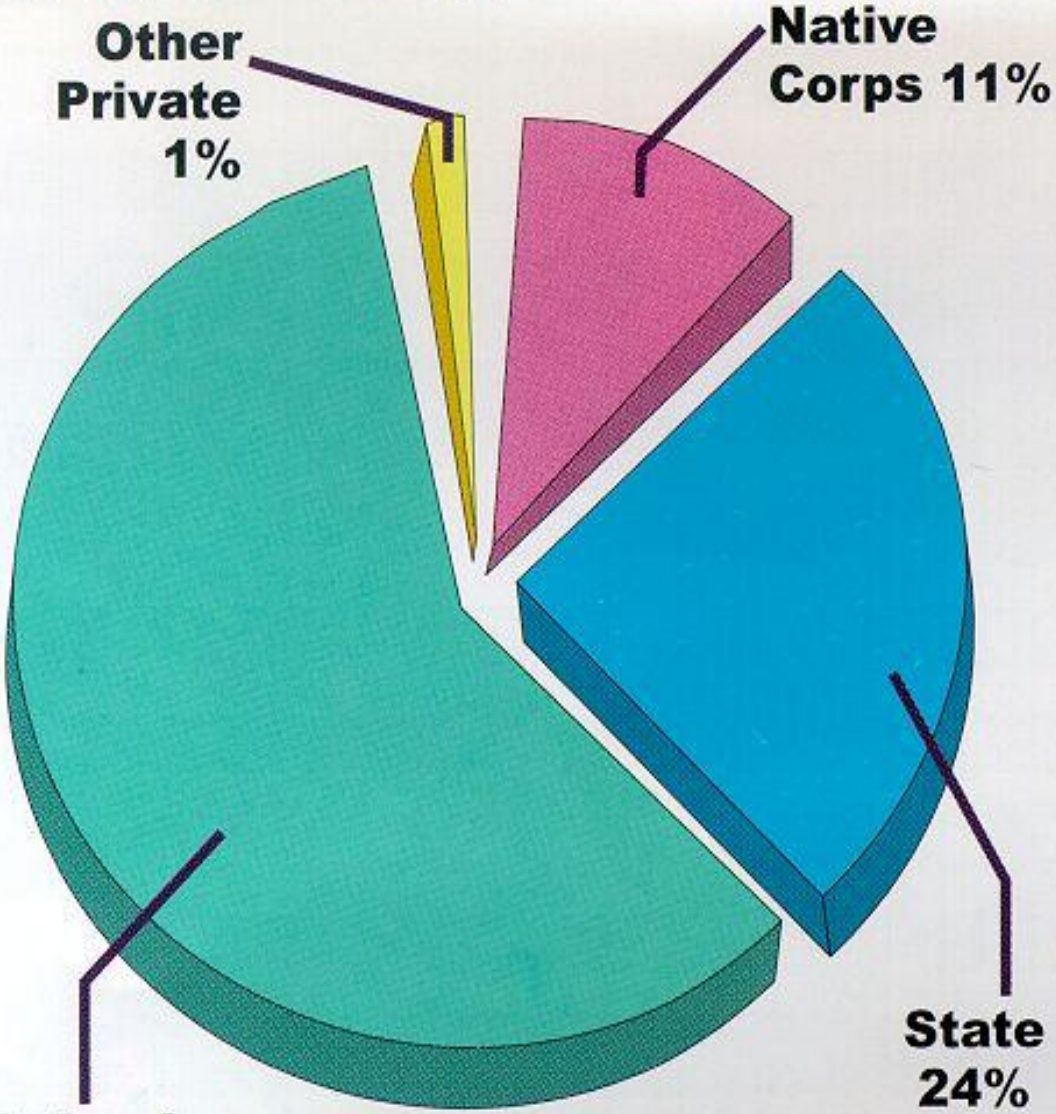
-Limited Road Access

-Extreme Weather (including cold, limited seasonal daylight)

Challenges

- ~1 gage/7 or 8,000 square miles
- ~120 or less gages operating annually
- $50k/year+ for some stream gaging
- Limited $ for data management and reporting $
- Variety of land management/ownership

LAND OWNERSHIP



(estimated in million acres)

Federal	
BLM Public lands	87.7
National Wildlife Refuges	72.4
National Park System	52.9
National Forest System	22.5
Defense & other federal	2.3
Total	237.8
State of Alaska	90.0
Private	
Native Corporations	36.7
Other	1.0
Total Acres in Alaska:	365.5

Source: Bureau of Land Management, current to October 1, 1997

Federal Reserved Water Rights

- Winters Doctrine
- McCarren Amendment
- Cappaert v. United States
- State v
- State Related

  AS 46.15.145 1980

  AS 46.15.165 1986

  AS 46.15.166 1986

Federal Reserved Water Rights

- Apply to River/Lake (surface/subsurface water allocation related uses)
- Doctrine of Prior Appropriation (Priority Dates)
- Minimal Amount of Water Necessary to Satisfy Federal Land Reservation
- FRWR created without implementation and not lost by non-use

Existing Management Plans/Research

State and Regional Planning

- Area plans, etc. from pre- and post- statehood
- Level B Studies
- USGS Gaging Network Assessment
- State and local governments and private initiatives

Management Plans/Research

National and International Planning Examples

- USGS Water Census
- Landscape Conservation Cooperatives
- Pre SB 150 Documentation
- Welker Legislative Audit
- Indian River Historical Documentation
- Alaska Water Resources Board Documentation
- State/Federal Work Group (FRWR)

Examples: Key Challenges

- Lack of Public Comprehension
- Surface/Subsurface Water Connectivity
- Water Quality/Quantity Links
- Limited hydrologic related historical data
- Expenses to collect, manage, and report data
- Limited precision and accuracy of current estimation models

RECOMMENDATIONS

- Develop statewide long-term water use and needs plans
- Obtain seasonal long-term baseline water quantity and quality information and relationships.
- Continue efforts to better understand seasonal and long-term watershed ecological functions and relations to human socio economic needs

- continued-

RECOMMENDATIONS - continued

- Joint Funding Requests (federal, state, academic, private)
- Public/Stakeholder Education/Involvement
- Participate in National/Regional Initiatives (example USGS Water Census, LCC, other watershed scale efforts)
- Seek interdisciplinary/other collaboration

(CACFA,AWRA, IHCA, AGDC, AFS, ASCE, IFC, NFHP, WSWC, WWE, NHA, LCC, JV, AFWA, NAWCA, Universities, etc.)

RECOMMENDATIONS - continued

-Develop and maintain comprehensive list of data sources for local, regional, and national hydrologic related data initiatives and information (with web links)

-Use graphics that display appropriate geographic information re: Alaska

-Follow Advice of Welker Audit –use different basin definition

RECOMMENDATIONS - continued

-Restore membership in Western States Water Council

-Reestablish Alaska Water Use Board

-Collect hydrologic and other data needed to adjudicate large basins where conflicts may occur in the future.

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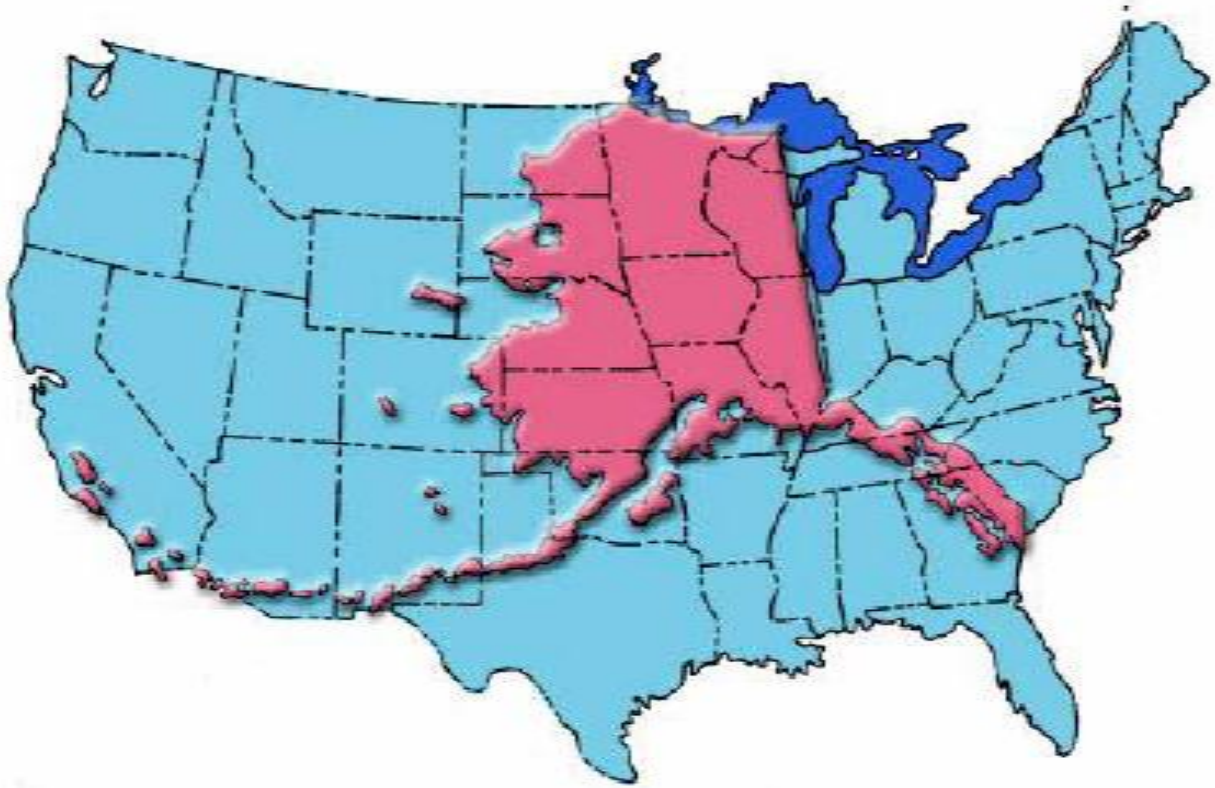
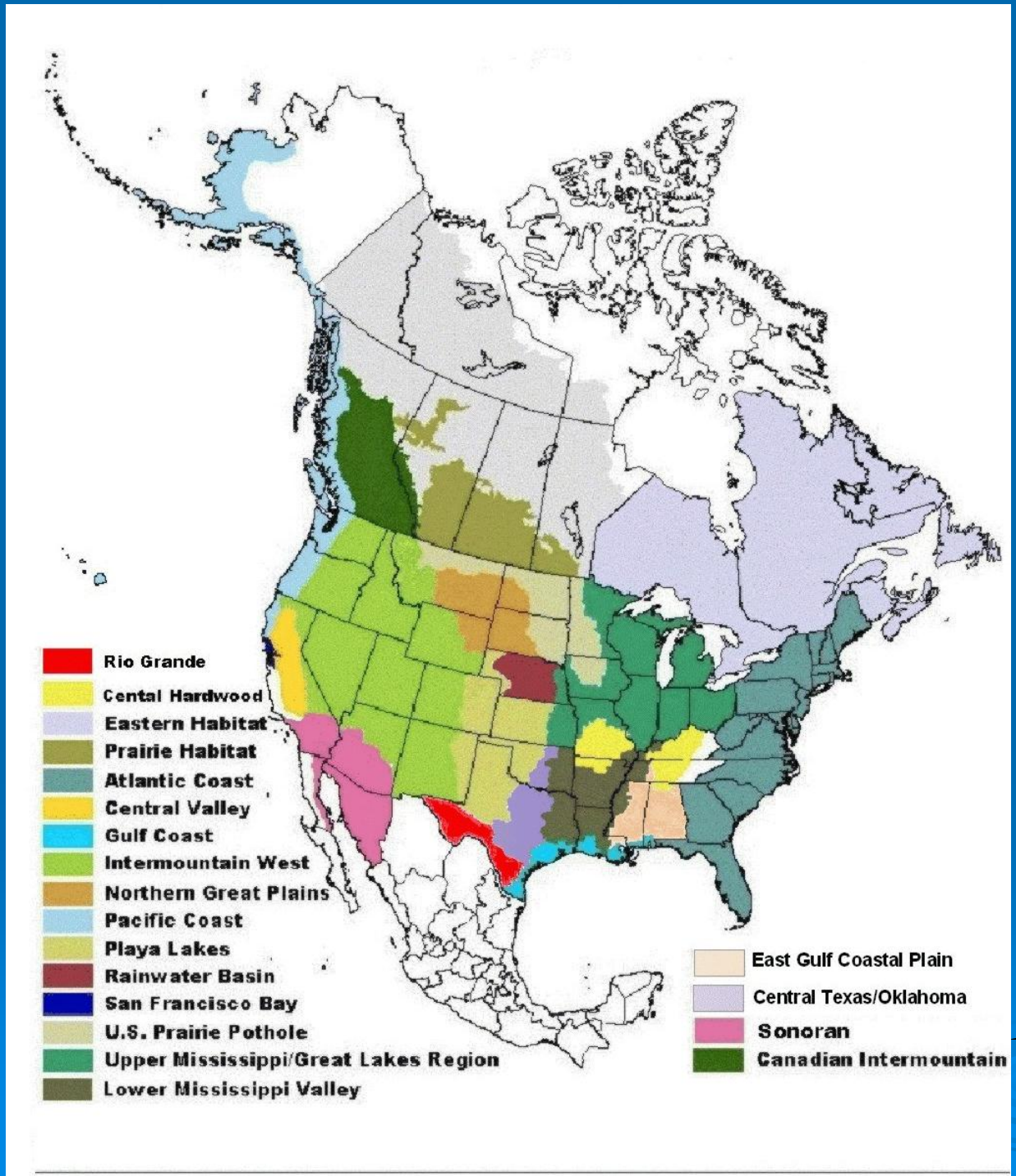
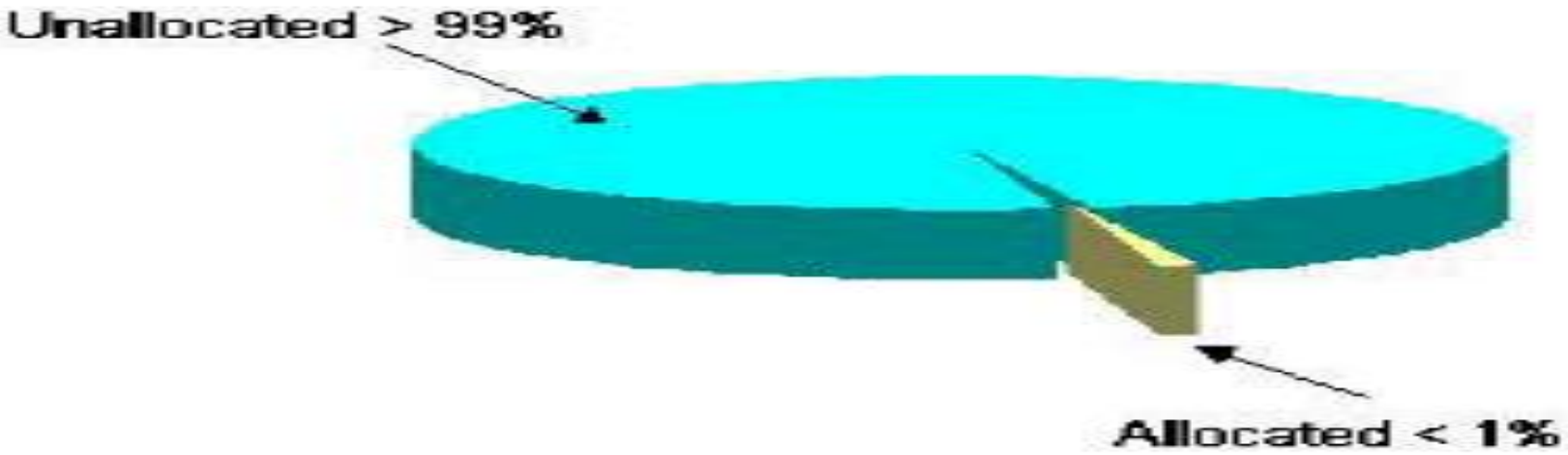




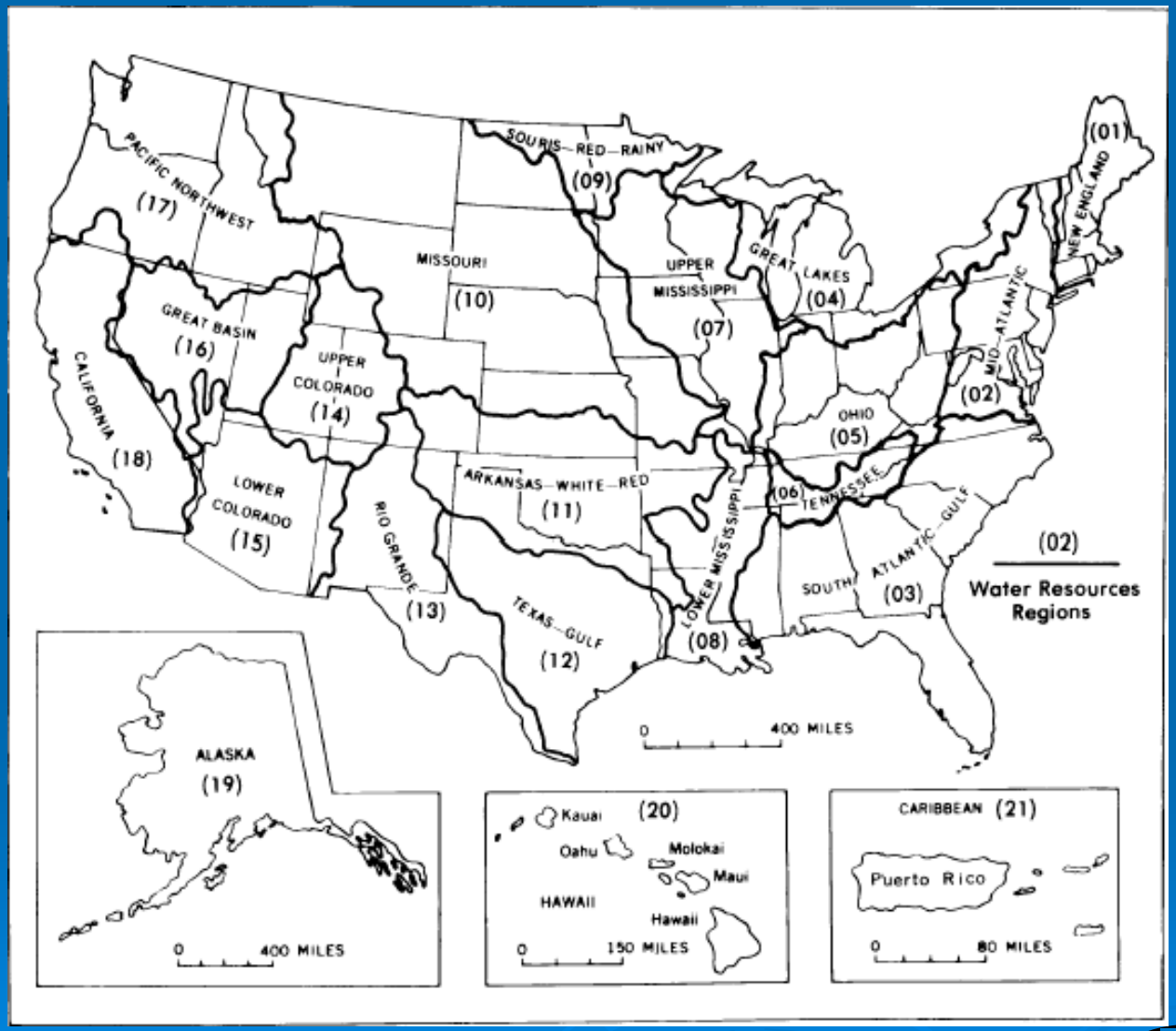
Continental U.S./North America Map Illustration- Current Joint Ventures - NAWMP

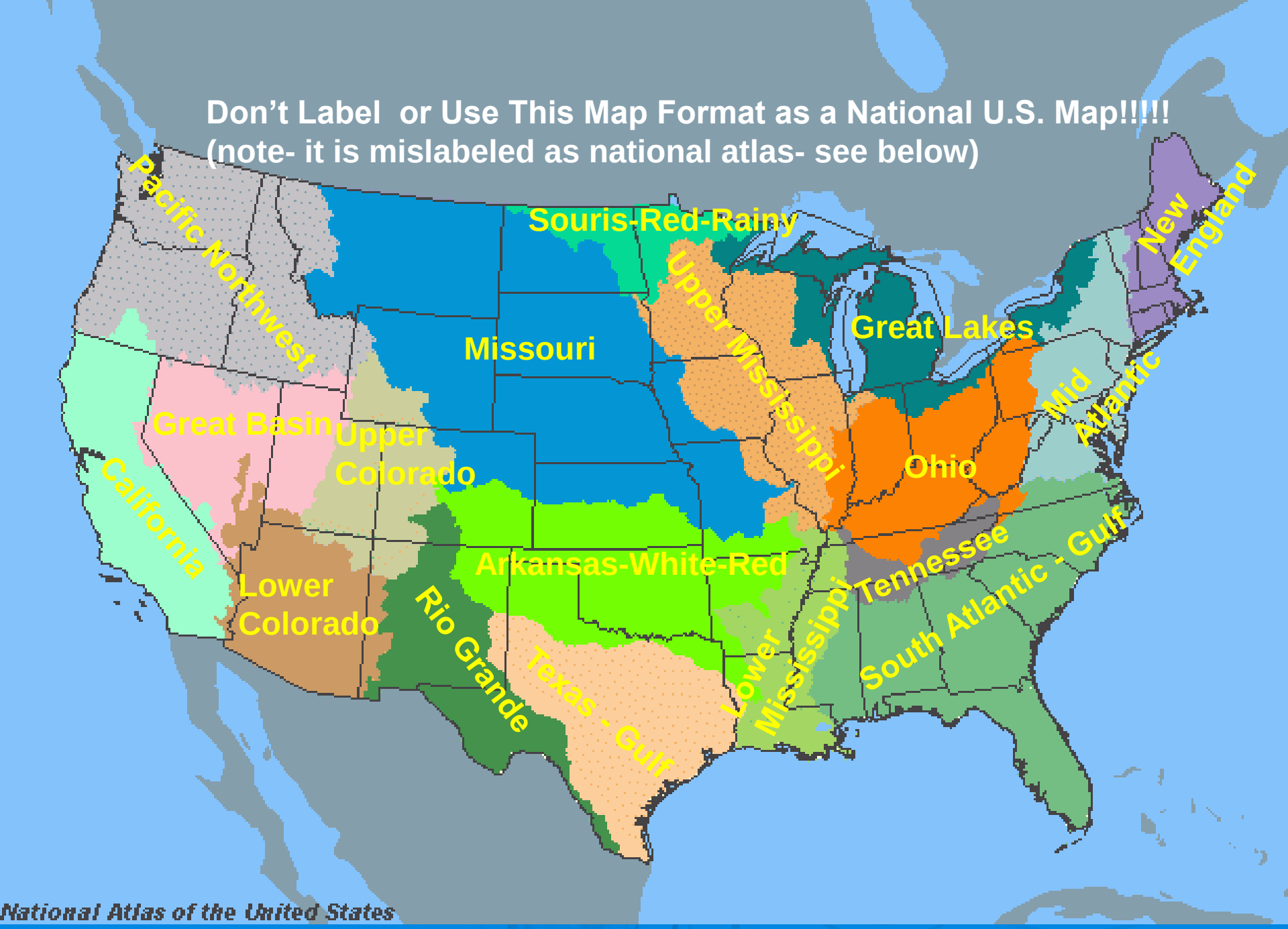
Surface Water Resources Comparison Between Alaska and Contiguous Lower 48 States

Alaska Water Allocation



If Possible Avoid Using The Following Map Formats


PACIFIC NORTHWEST (17)
SOURIS—RED—RAINY (09)
(01)
NEW ENGLAND
MISSOURI (10)
UPPER MISSISSIPPI (07)
GREAT LAKES (04)
MID—ATLANTIC (02)
GREAT BASIN (16)
UPPER COLORADO (14)
CALIFORNIA (18)
OHIO (05)
LOWER COLORADO (15)
ARKANSAS—WHITE—RED (11)
(06) TENNESSEE
RIO GRANDE (13)
LOWER MISSISSIPPI
SOUTH ATLANTIC—GULF (03)
TEXAS—GULF (12)
(08)
(02)
Water Resources Regions
0 400 MILES
ALASKA (19)
0 400 MILES
(20)
Kauai
Oahu
Molokai
Maui
HAWAII
Hawaii
0 150 MILES
CARIBBEAN (21)
Puerto Rico
0 80 MILES


Don’t Label or Use This Map Format as a National U.S. Map!!!!!
(note- it is mislabeled as national atlas- see below)
Pacific Northwest
Souris-Red-Rainy
Upper Mississippi
Great Lakes
New England
Missouri
Mid Atlantic
Great Basin
Upper Colorado
Ohio
California
Arkansas-White-Red
Tennessee
Lower Colorado
Rio Grande
Texas - Gulf
Lower Mississippi
South Atlantic - Gulf
National Atlas of the United States

QUESTIONS?

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