

Sustainable Water Resources Roundtable

An Overview

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SAP Executive Conference Center
April 27, 2010

Sustainable Water Resources Roundtable



A national collaboration of federal, state, local, corporate, non-profit and academic interests



Our Mission

To promote sustainability of our nation's resources through ...

- Evaluation of information
- Development & use of indicators
- Targeting of research
- Engagement of people & partners

Our Vision

A future in which our nation's water resources support the integrity of economic, social and ecological systems and enhance the capacity of these systems to benefit people and nature





Outreach

- More than 400 active participants from federal, state and local governments; corporations; nonprofits and academia
- Meetings in California; Colorado; Maryland; Michigan; Minnesota; Virginia; Washington, D.C.
- Publications and conference presentations
- 2005 Preliminary Report
http://acwi.gov/swrr/Rpt_Pubs/prelim_rpt/index.html
- 2010 SWRR Report

Principles of Water Sustainability

1. The value & limits of water

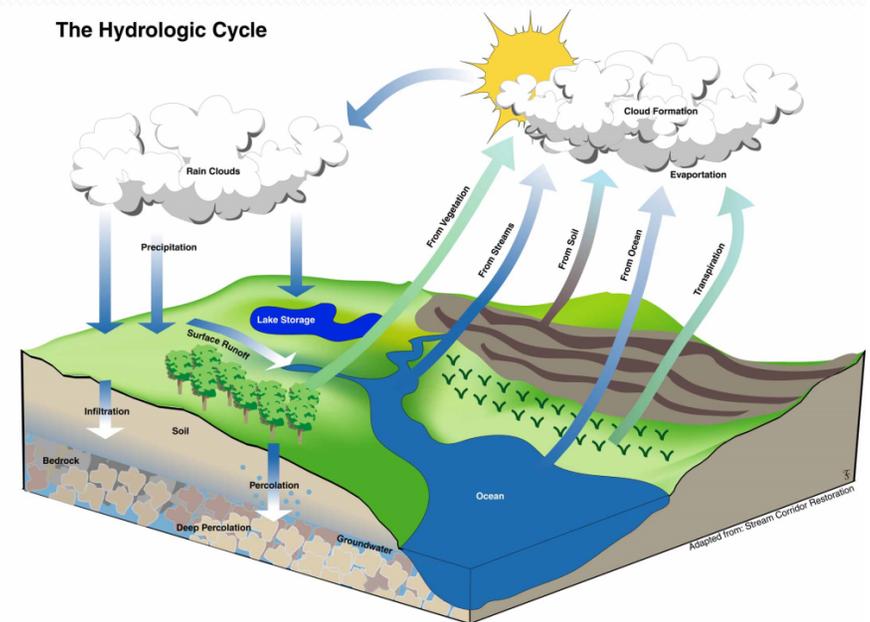
People need to understand the value and appreciate the limits of water resources and the risks to people and ecosystems of unbounded water and land use



Principles of Water Sustainability

2. *Shared responsibility*

Because water does not respect political boundaries, its management requires shared consideration of the needs of people and ecosystems up- and downstream and throughout the hydrologic cycle



Principles of Water Sustainability

3. Equitable access

Sustainability suggests fair and equitable access to water, water dependent resources and related infrastructure



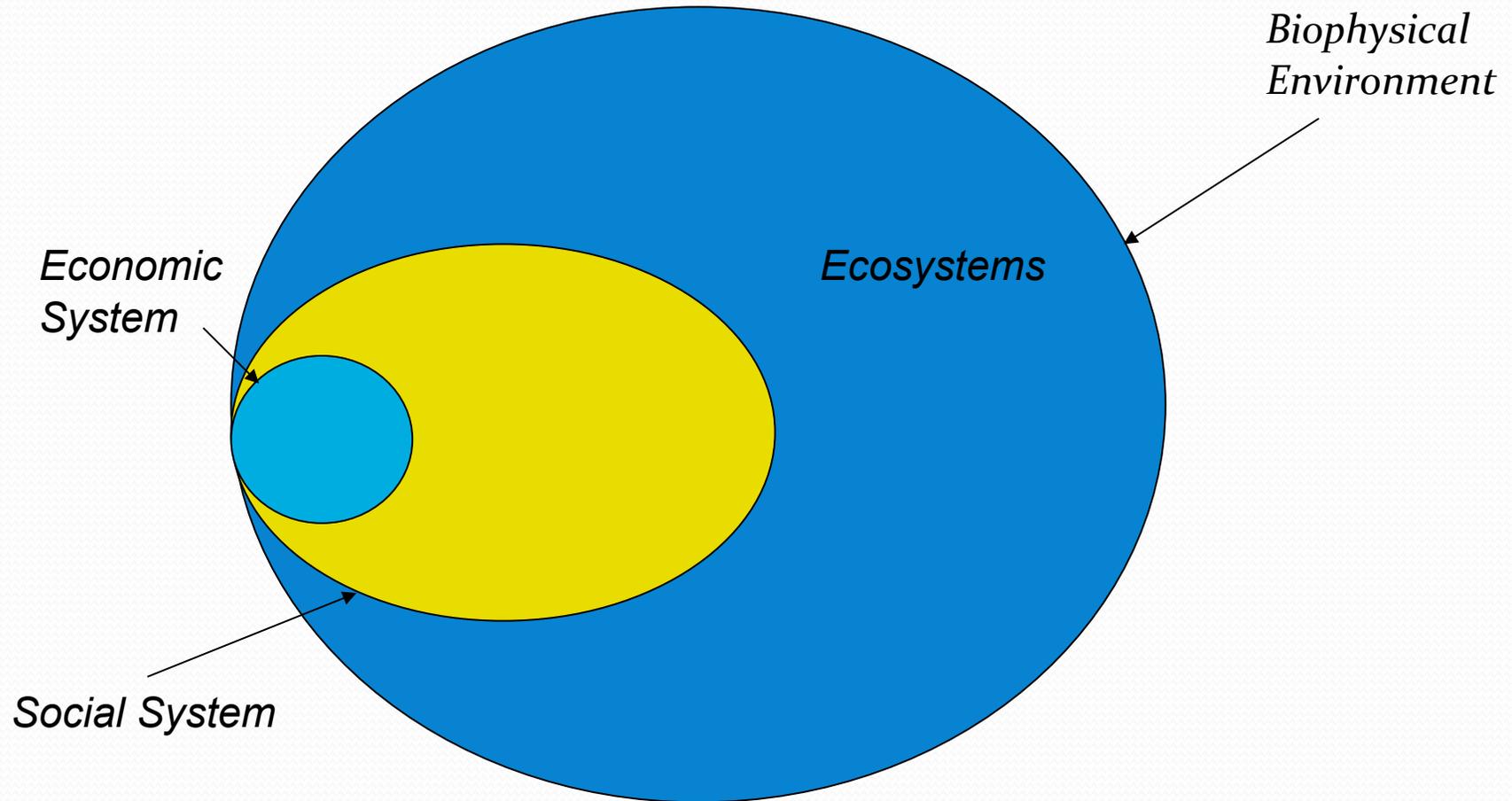
Principles of Water Sustainability

4. *Stewardship*

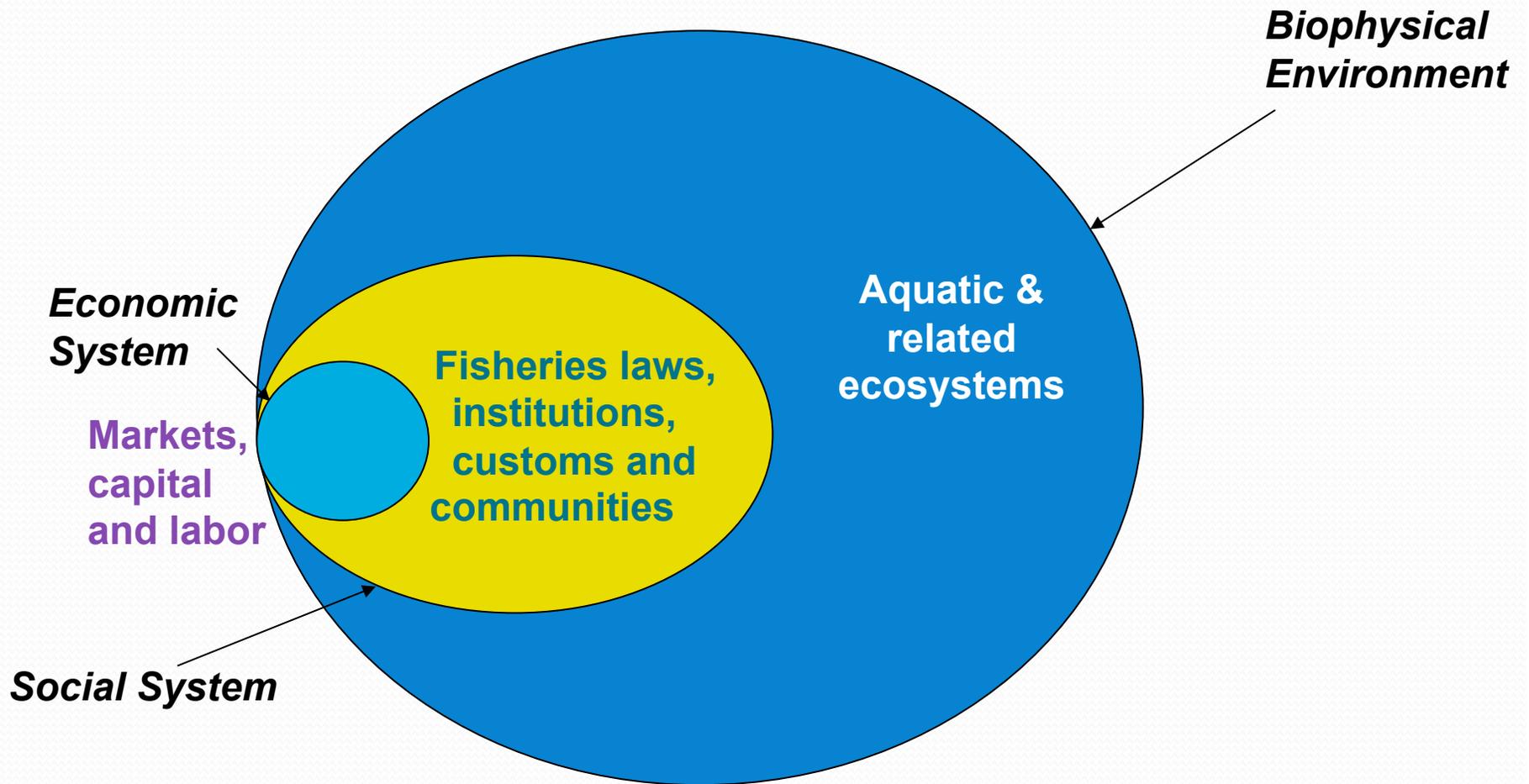
Managing water to achieve sustainability challenges us while meeting today's needs to address the implications of our decisions on future generations and the ecosystems upon which they will rely



Essential Relationships of Sustainability



Fisheries Relationships

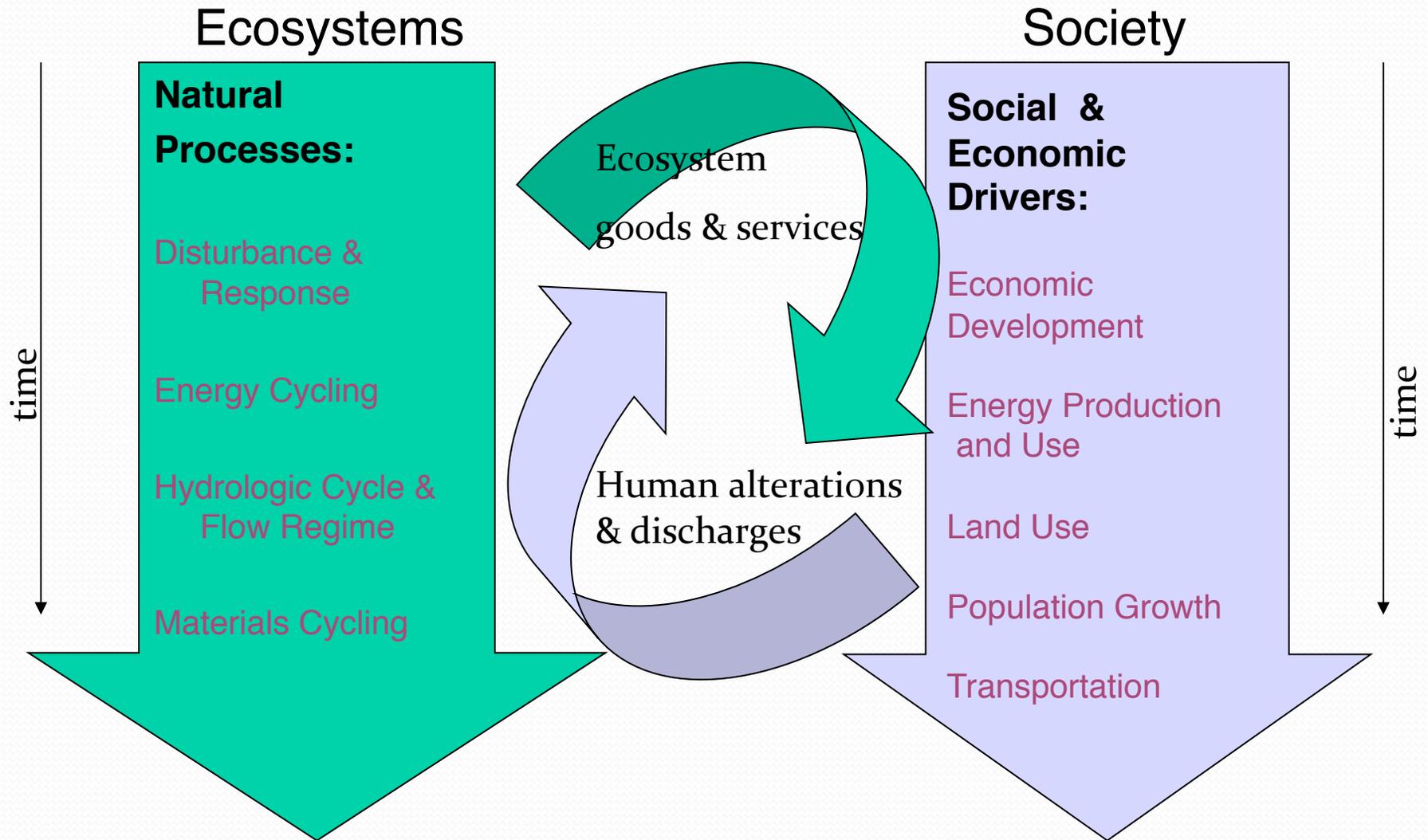


Capital and System Capacities

- **Capital is the capacity to produce value over time**
- **Environmental, social and economic systems produce value through flows of services, experiences, or goods that meet human and ecosystem needs over time**
- **We achieve sustainability by maintaining capital to meet needs**

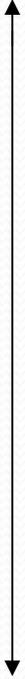


Ecosystem Processes & Societal Drivers

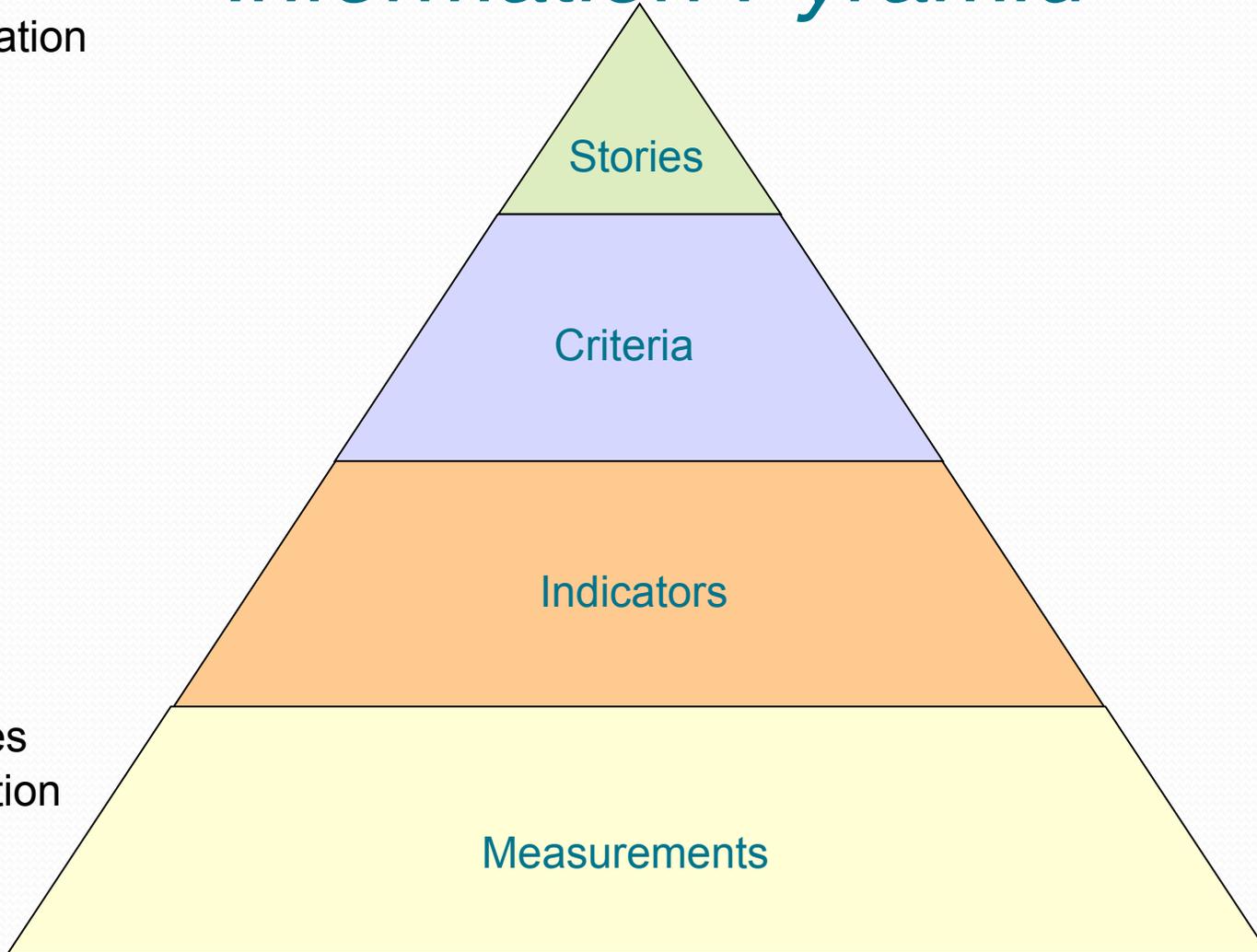


Information Pyramid

Fewer Pieces
Of Information



More Pieces
Of Information



Indicators

Measures that present trends information relevant to water sustainability in a readily understandable way



Factors

- **Condition & capacity of ecological, social and economic systems**
- **A focus on what's most relevant to sustainability**
- **Appropriate time horizons and scale**
- **Information integrity**
- **Understandability**

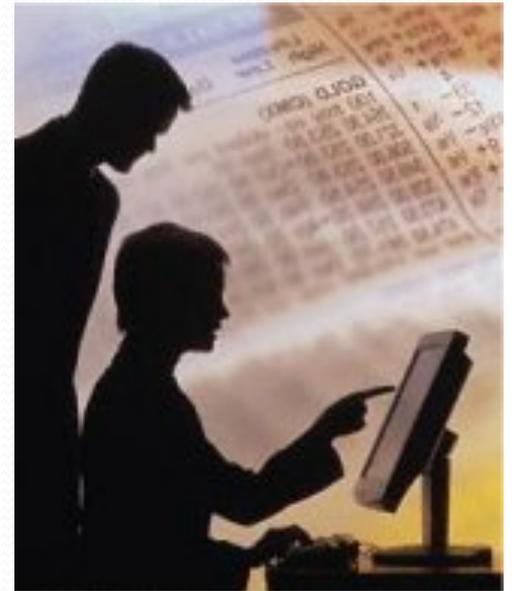


The SWRR Indicator Framework

Indicators represent a way to measure
progress

The SWRR Indicator Framework

- Water availability
- Water quality
- Human uses and health
- Environmental health
- Infrastructure and institutions



Water Availability

- **Renewable water**
 - Upper limit of water availability
- **Water in the environment**
 - Water remaining after human uses
- **Water use sustainability**
 - Degree to which water use meets current needs while protecting ecosystems and the interests of future generations



Water Quality

- **Quality of water for human uses**
 - Drinking, recreation, industry and agriculture, etc
- **Quality of water in the environment**
 - Flora and fauna and related ecosystem processes
- **Water quality sustainability**
 - degree to which water quality satisfies human and ecosystem needs



Human Uses and Health

- **Withdrawal and use of water**
 - amount of water withdrawn from the environment and the uses to which it is put
- **Human uses of water in the environment**
 - extent to which people use water resources for waste assimilation, transportation and recreation



Human Uses and Health

- **Water-dependant resource use**
 - extent to which people use resources like fish and shellfish that depend on water resources
- **Human health**
 - extent to which human health may be affected by the use of water and related resources



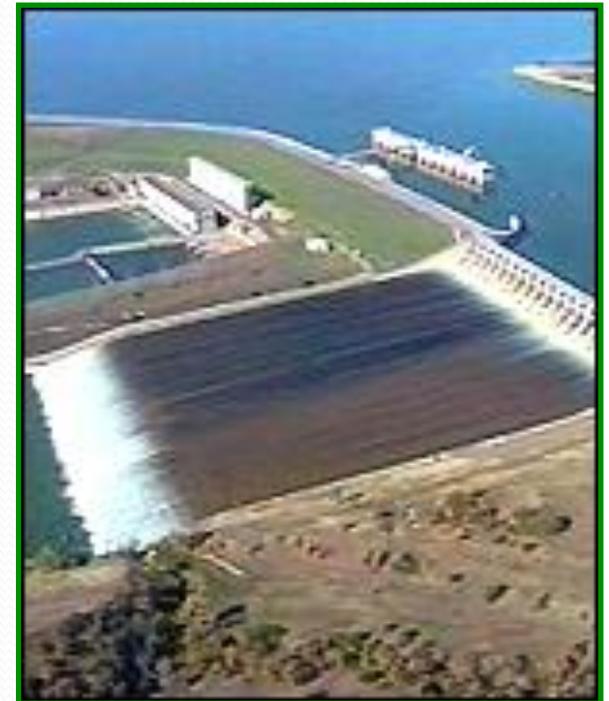
Environmental Health

- **Indices of biological condition**
 - health of ecosystems
- **Amounts and quality of living resources**
 - productivity of ecosystems



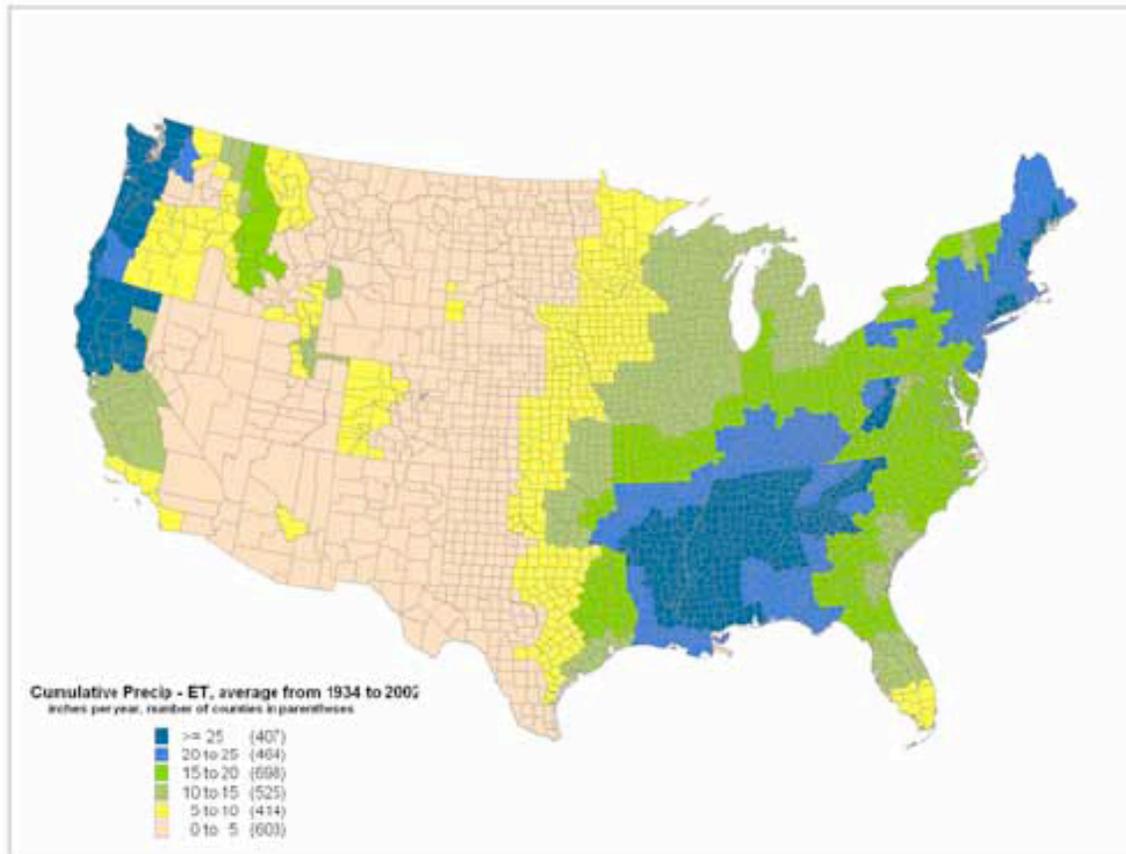
Infrastructure and Institutions

- **Capacity and reliability of infrastructure**
 - capacity and reliability of infrastructure to meet human and ecosystem needs
- **Efficacy of institutions**
 - efficacy of legal and institutional frameworks in managing water and related resources sustainably



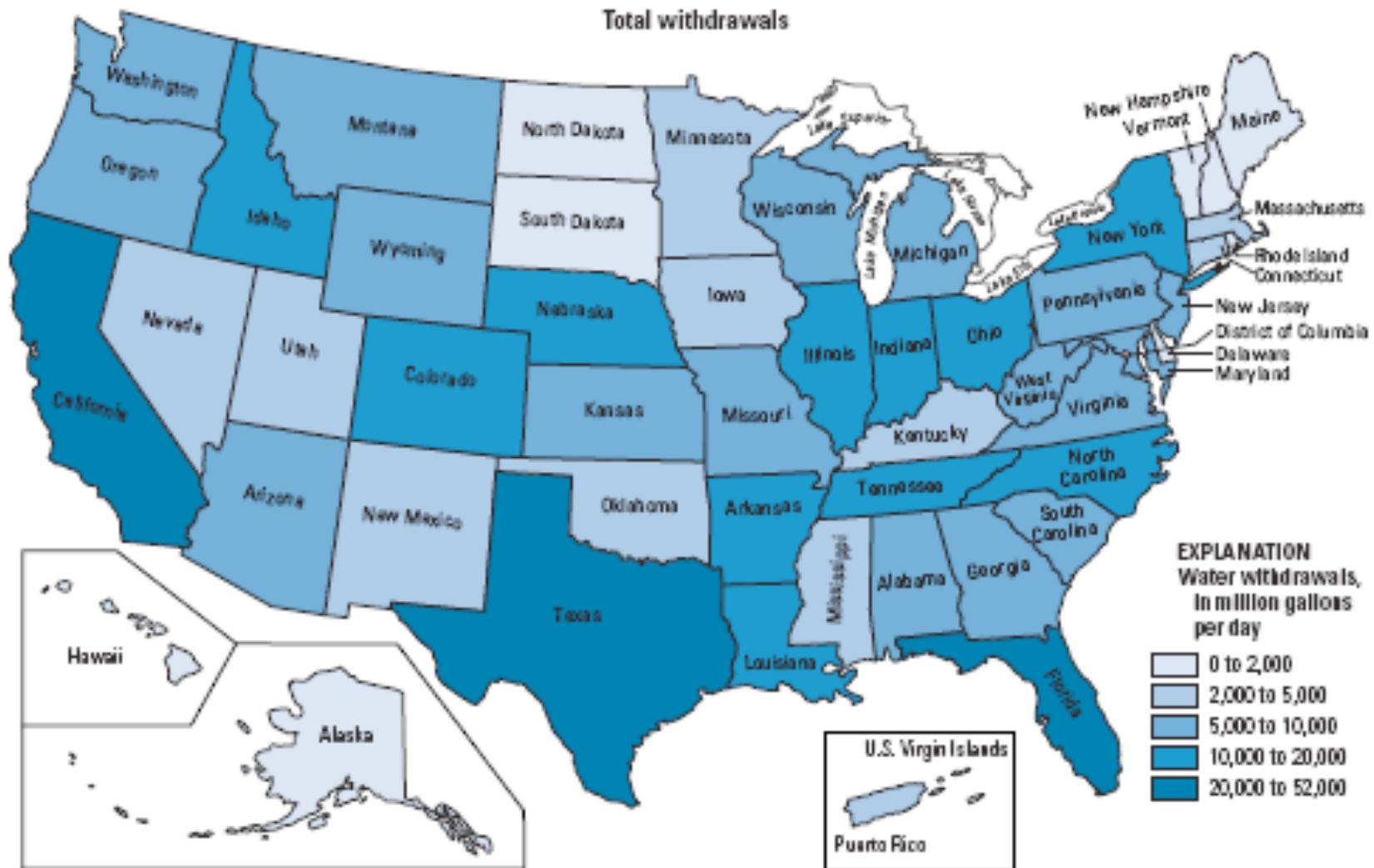
Sample Indicators

Available Precipitation



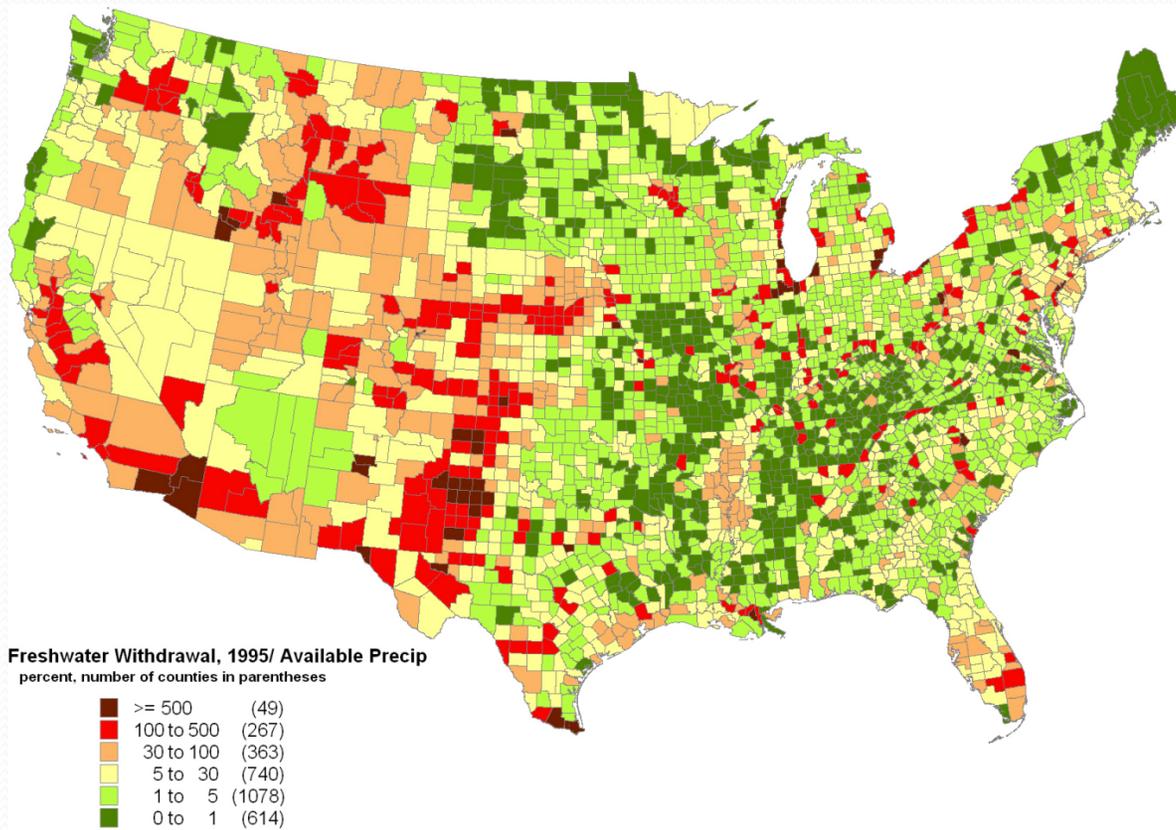
Source: S. Roy, K. Summers and R. Goldstein

Water Withdrawals USGS (2000)



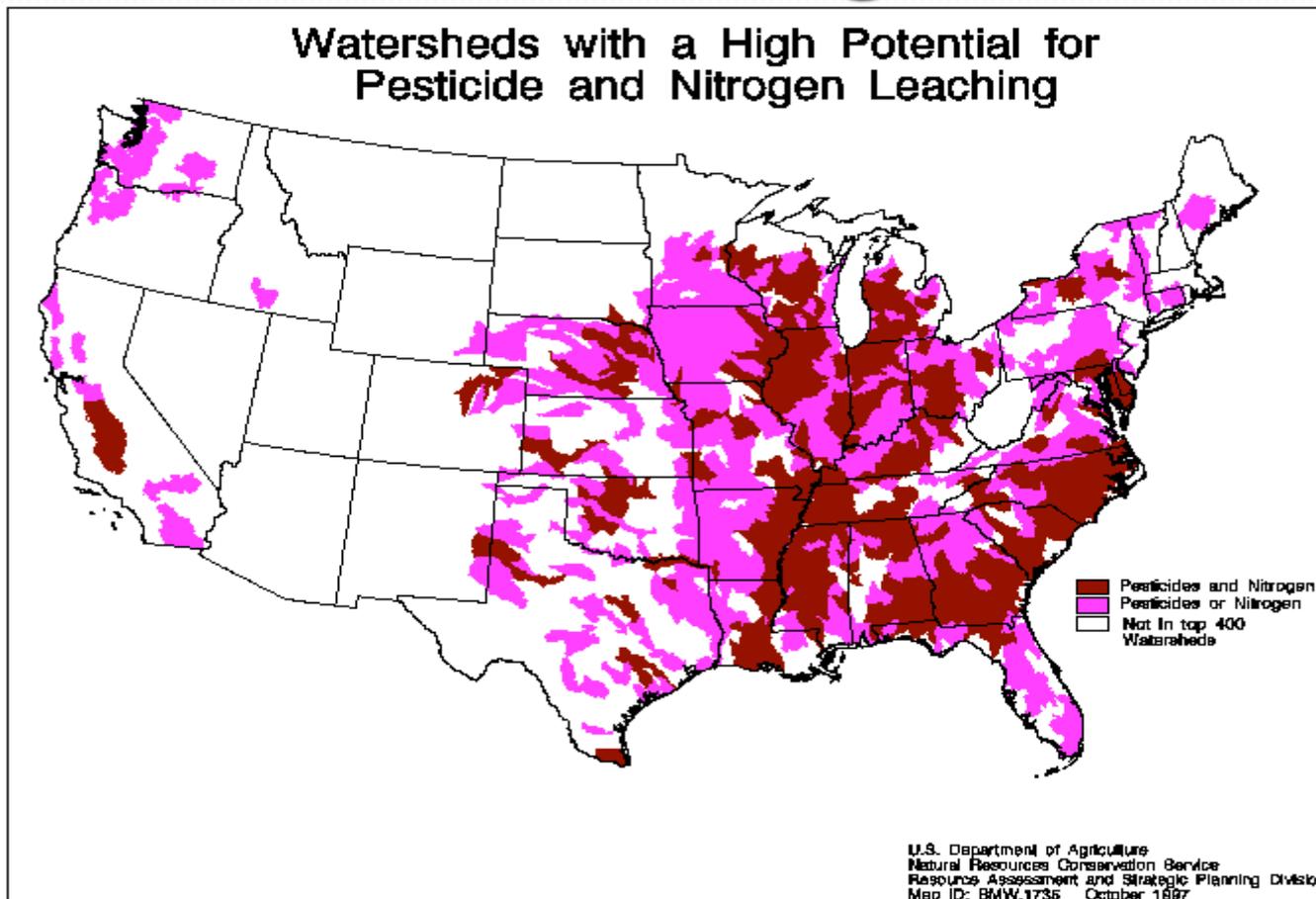
Water Use Sustainability

Withdrawals as a percent of available precipitation,
1995

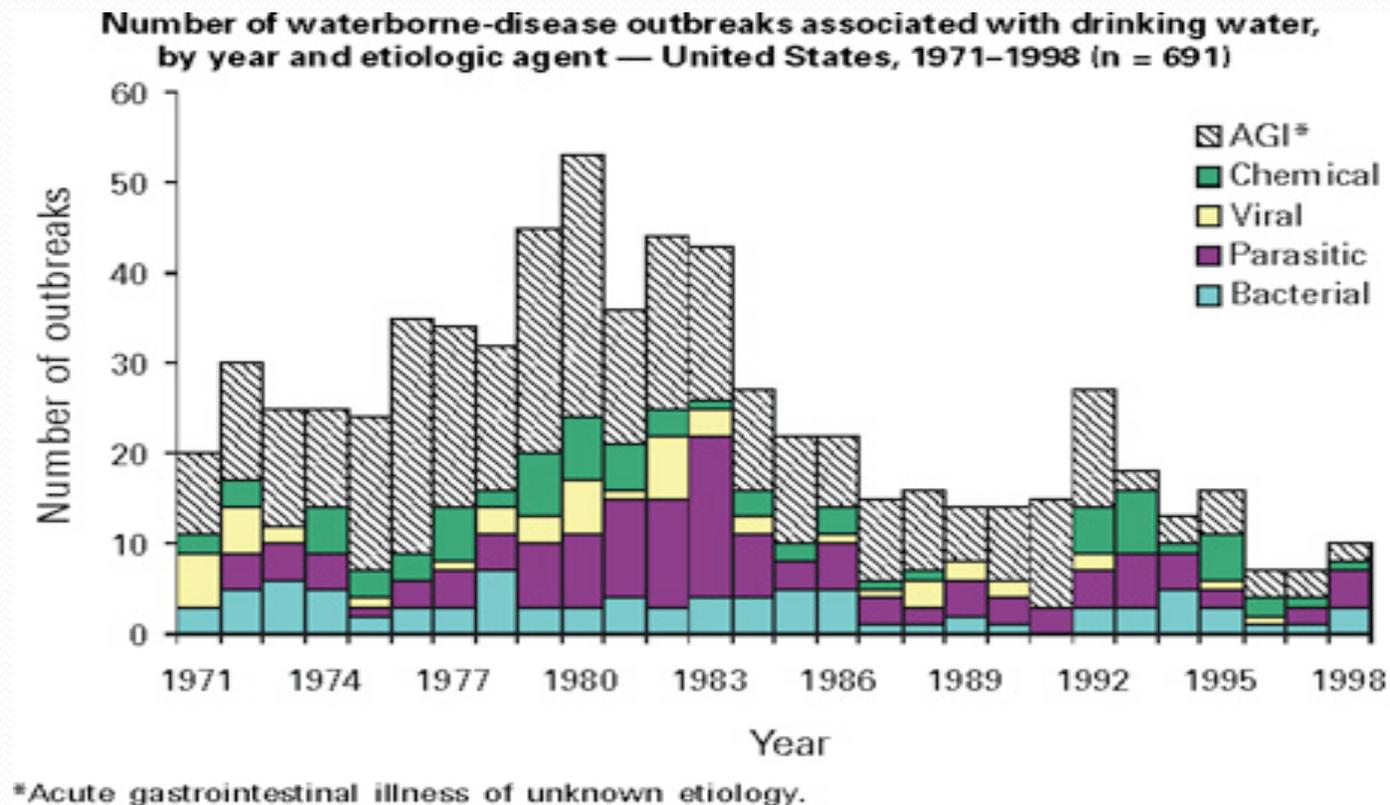


Source: S. Roy, K. Summers and R. Goldstein

Watersheds with a High Potential for Pesticide and Nitrogen Leaching

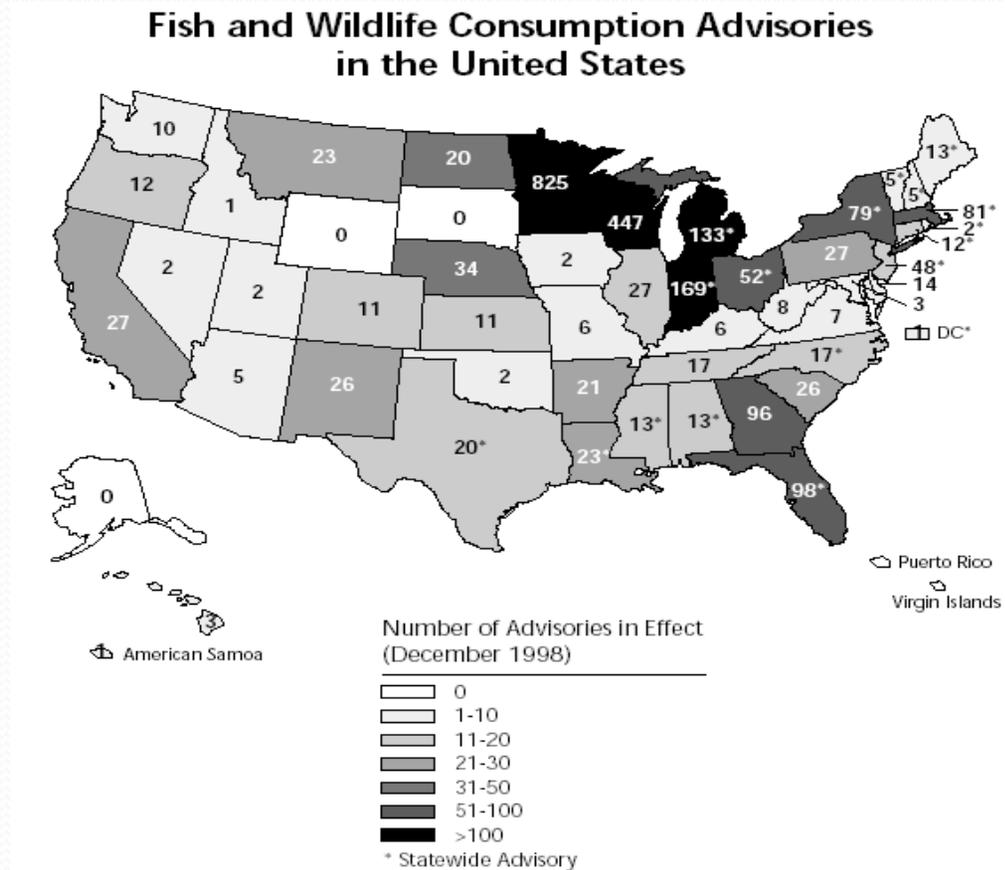


Reported Incidence of Waterborne Disease



Source: Surveillance for Waterborne Disease
Outbreaks - US, 1997-1998

Contamination Of Fish & Wildlife



Source: U.S. Environmental Protection Agency, National Water Quality Inventory 1998 Report

California **Water Plan** Highlights

INTEGRATED WATER MANAGEMENT



Update 2009 • Department of Water Resources

Pre-Final Draft

October 16, 2009

Update 2009 – CA's Water Blueprint

Integrated Water Management & Sustainability

- Public Health, Safety, Quality of Life
- Vitality, Productivity, Economic Growth
- Healthy Ecosystem, Cultural Heritage

Foundational Actions for SUSTAINABLE WATER USES

- Use Water Efficiently
- Protect Water Quality
- Expand Environmental Stewardship

Initiatives for RELIABLE WATER SUPPLIES

- Expand Integrated Regional Water Management
- Improve Statewide Water and Flood Management Systems



Managing an Uncertain Future

Chapter 5, Volume 1

- **Recognizing and Reducing Uncertainty**
- **Assessing Risk**
- **Managing for Sustainability**
 - **What is Sustainability?**
 - **Sustainability Indicators (SWRR)**
 - **Examples of Managing for Sustainability**
 - **Water Wiki (SWRR)**

Next Steps for the SWRR

- Continuing roundtable outreach
 - Building regional connections
 - Adding new private, nonprofit & public sector partners
- Refining the sample indicators
 - Addressing sustainability and scale
 - Linking to national and regional indicator sets
- Collaborating with NEST and the National Water Census
- Assisting agencies in describing the need for programs to collect indicators information



Contact Information

SWRR Co-Chairs

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- Robert Wilkinson, Bren School of Environmental Science and Management, University of California, Santa Barbara, wilkinson@es.ucsb.edu
- John Wells, Environmental Quality Board, State of Minnesota, john.wells@state.mn.us

SWRR Manager and Facilitator

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<http://acwi.gov/swrr>