

Sustainable Water Resources Roundtable

ACWI Overview

John Wells, SWRR Co-Chair

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Sustainable Water Resources Roundtable



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

A committee of the USGS
Advisory Committee on Water
Information

Our Mission

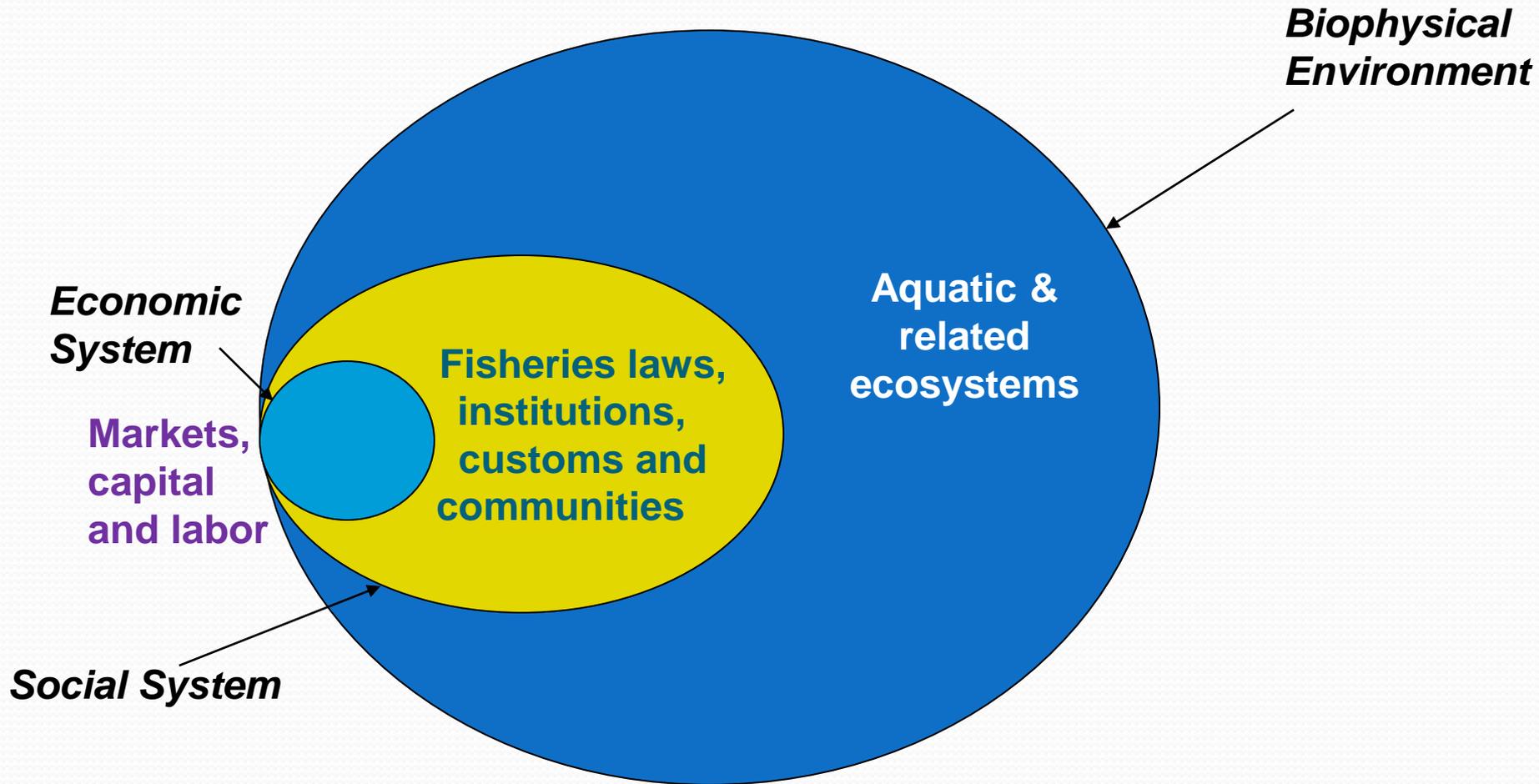
To promote sustainability of the nation's resources through ...

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

Outreach

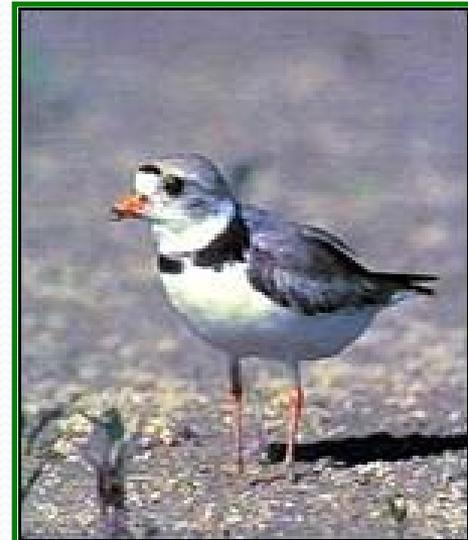
- 600 participants from federal, state and local governments; corporations; nonprofits and academia
- Meetings in California; Colorado; Maryland; Michigan; Minnesota; Virginia; Washington, D.C.
- Web site <http://acwi.gov/swrr/index.html>
- 2005 Preliminary Report
http://acwi.gov/swrr/Rpt_Pubs/prelim_rpt/index.html
- 2010 SWRR Report
http://acwi.gov/swrr/Rpt_Pubs/SWRRReportMarch2010.pdf

Essential Relationships of Sustainability with Fisheries

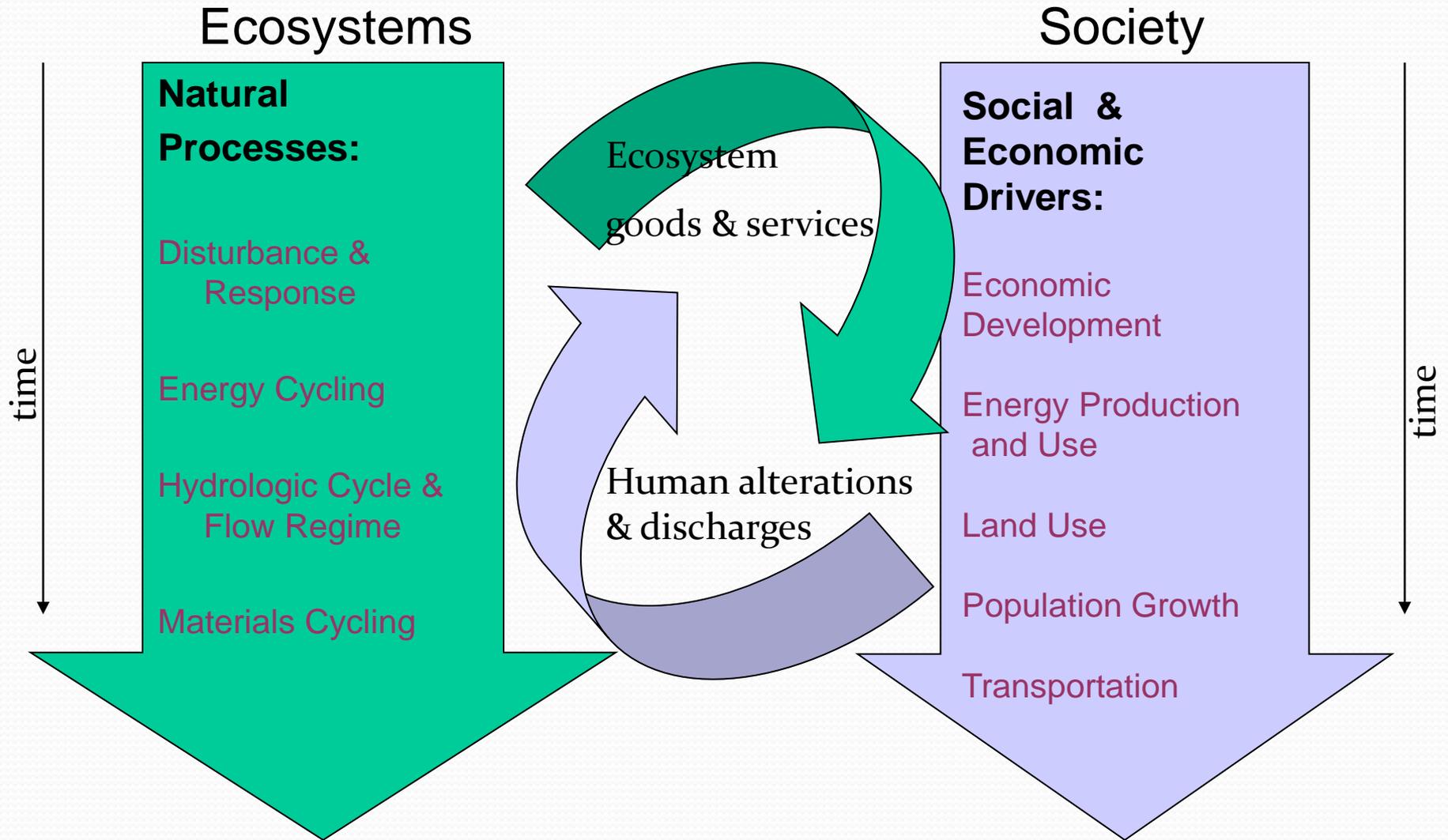


Capital and System Capacities

- **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**

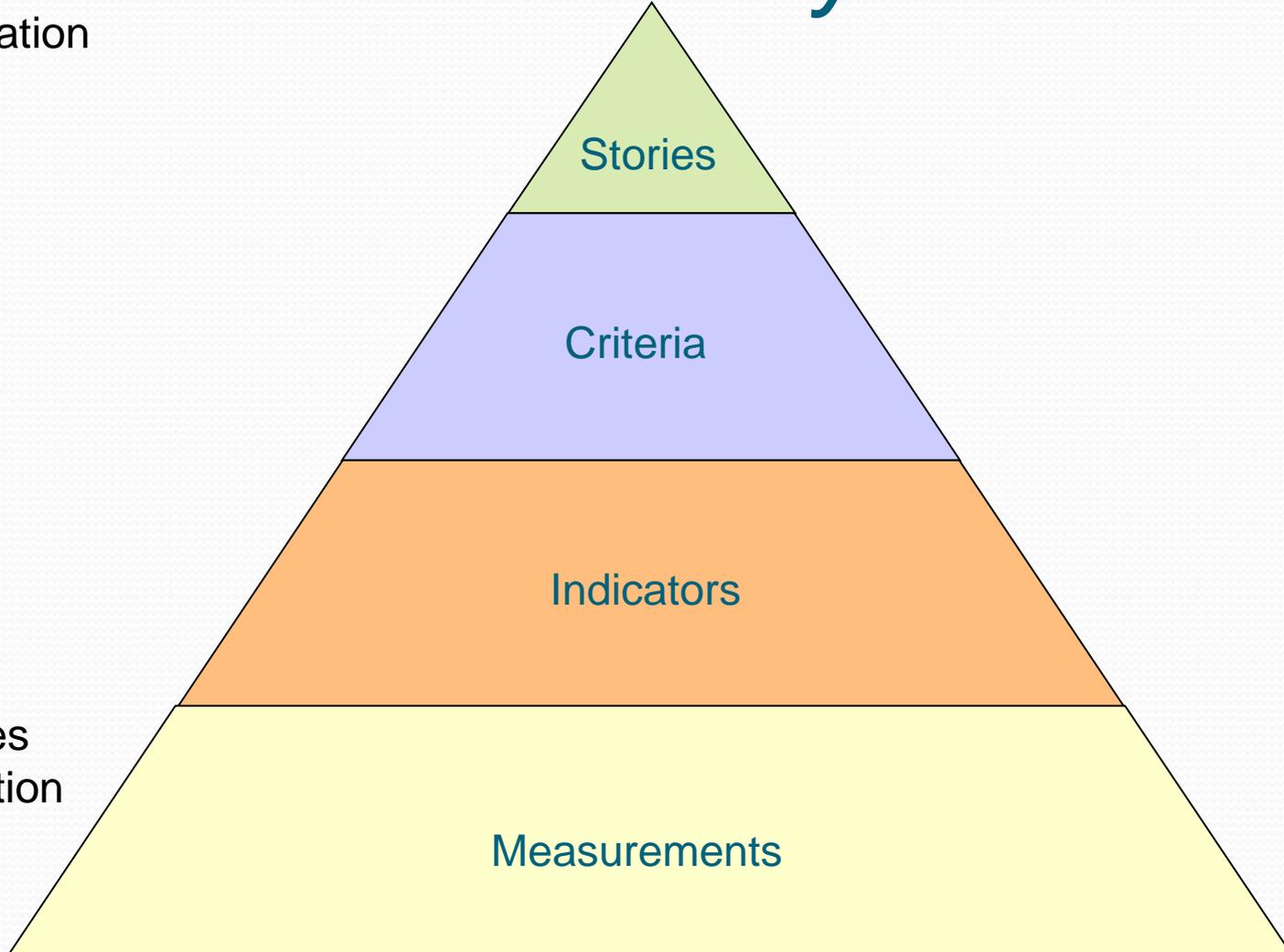


Ecosystem Processes & Societal Drivers





Information Pyramid



Fewer Pieces
Of Information



Stories

Criteria

Indicators

Measurements

More Pieces
Of Information

The SWRR Indicator Framework

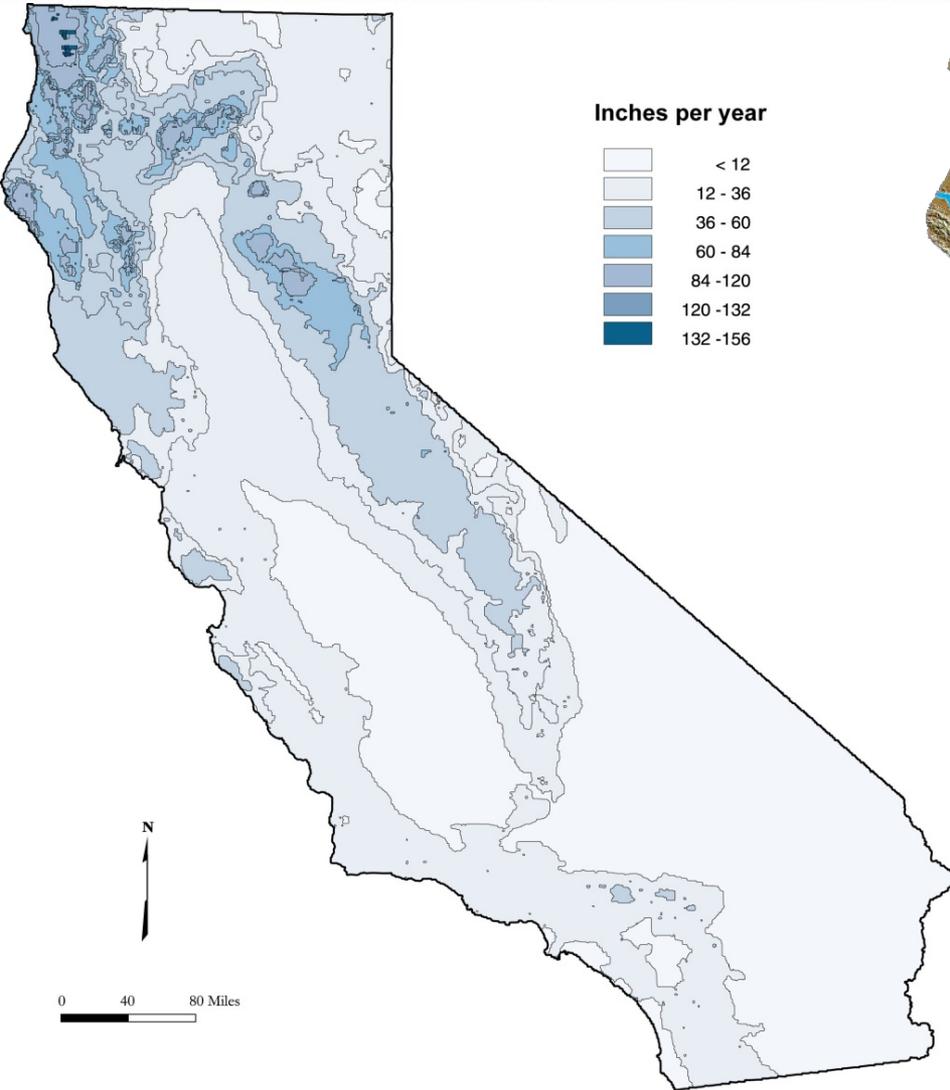
- Water availability
- Water quality
- Human uses and health
- Environmental health
- Infrastructure and institutions

California Water Plan

Blueprint for Integrated Water Management & Sustainability

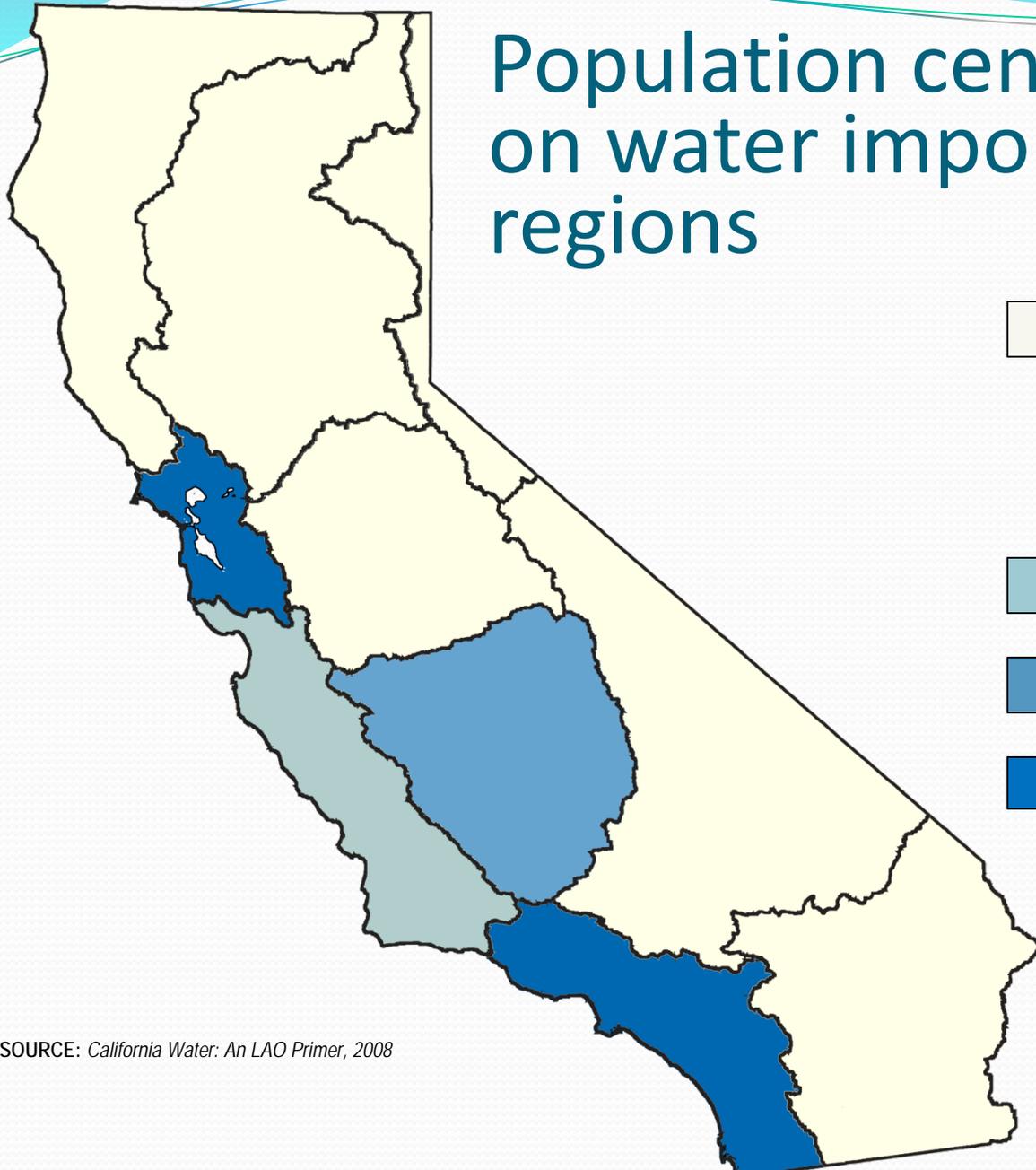


California Water



Mean annual precipitation in California, 1951 to 1990

Population centers rely heavily on water imported from other regions



Net Exporters*

Net Importers

Percent urban & agricultural water use from Imports

Less than 30%

30 to 60%

More than 60%

* While the Colorado River is a net exporter of water within California, its main source of water is imported from the Upper Colorado Basin

Imperative to Act

**The *Entire* System –
water & flood facilities,
watersheds & ecosystems**

**– has lost resilience and is
changing in undesirable
ways.**



Imperative to Act to Keep Pace w/ Changes



- Population growth & movement
- Shift to permanent crops
- Increasing flood risk
- Declining Delta & watersheds
- Impaired water bodies
- Climate Change profoundly impacting water systems
- Aging water & flood systems challenged by legal remedies & regulatory protections
- Growing economic & societal consequences of declining water reliability and degraded quality of surface & groundwater supplies

Sustainability Objective	Related CWP Objective and RMS	Example Indicators	Relevance to Sustainability Objective
1. Improve water use efficiency, increase water recycling, and increase water conservation in order to improve water supply reliability, reduce energy demand, and restore and maintain aquatic ecosystems and processes.	CWP Objective 2, 9; RMS Reduce demand	Energy required per unit of clean drinking water	Reduce energy demand for providing water
		Average water use per household,/capita, 20% reduction by 2020	Increase water conservation
		Sufficient flows and timing of flows for maintaining historically-present native aquatic fauna	Restore and maintain native ecosystems

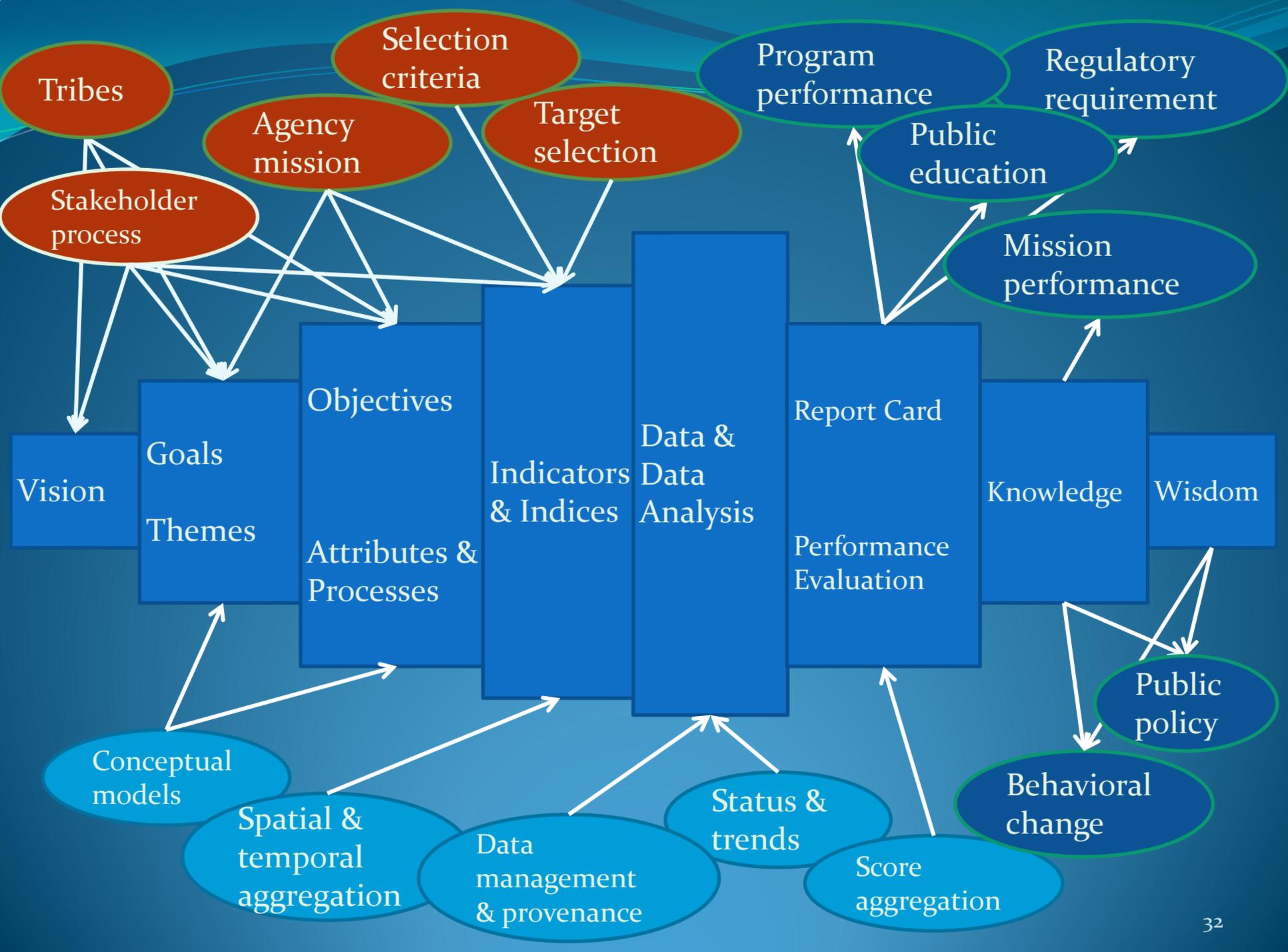
Sustainability Objective	Related CWP Objective and RMS	Example Indicators	Relevance to Sustainability Objective
4. Protect and restore surface water and groundwater quality and the natural systems that maintain these services in order to safeguard human and environmental health and secure California water supplies.	CWP Objective 4; RMS on water quality; chapter 4 discussion of water quality sustainability indicators	Ratio of observed to expected native aquatic species	Protect and restore water quality for environmental health
		Surface-water Water Quality Index	Surface water quality to safeguard human and environmental health
		Groundwater Water Quality Index	Ground water quality to safeguard human health

CA Water Plan Update 2013

Water Sustainability Indicators

Objective

Help monitor progress to meeting water sustainability objectives through the development and application of an analysis framework



ACWI and its Subgroups

- ACWI history and role – Wendy Norton, USGS
- National Water Quality Monitoring Council – Susan Holdsworth, USEPA
- Ground Water – Bill Cunningham, USGS
- Hydrology – Richard Raione, USNRC
- Sedimentation – Amanda Cox, Colorado Water Research Institute

ACWI Discussion Ideas

- Mission of collaboration is not focused on public education
- Technology allows a single one-stop shop for data; water quality portal is now available
- Sedimentation and the National Fish Habitat Partnership
- Google Earth opportunities
- Amazed at the number of interesting and important tasks of ACWI subcommittees

Army Water Security Observations

- Water management largely compliance-driven
- Less attention directed outward to sustainability of regionally shared water sources
- Long-term water projections currently not factored early into stationing decisions
- Chronic funding constraints means attention to Army-owned and Army-operated infrastructure tends to be reactive
- Long-term investment a challenge

Army Strategy Elements

- Assist host nations with water resources sustainability
- Assess the vulnerability of water and wastewater infrastructure to natural mishaps
- Match water quality to water use
- Anticipate long-term water requirements
- Influence long-term water management outside the fence line



Army Net Zero ...

- ENERGY Installation produces as much energy on site as it uses, over the course of a year
- WATER Installation does not deplete ground water and surface water resources in quantity or quality
- WASTE Installation converts waste streams to resource values with zero solid waste to landfill
- INSTALLATION captures and commercializes the resource value and/or enhances the ecological productivity of land, water and air

Water Sustainability at EPA

- Urban waters and sustainable community pilots
- Healthy Watersheds Initiative
- Climate-ready estuaries
- Effective utility management
- Green Infrastructure
- Value of water and ecosystem services
- Modeling climate impacts and adaptation options
- Emerging approaches:
 - Water sustainability indicators
 - Lifecycle costing



Enhancing Watershed Stewardship at the U.S. Forest Service

- How does climate and land use change shift water distribution?
- Likely consequences of these changes to plants, animals, and rural and urban communities?
- Scenarios for future forest disturbance regimes and aquatic ecosystems?
- Best metrics for measuring watershed condition?
- **Goal:** To facilitate watershed-based partnerships that foster conservation and citizen stewardship



Water Stewardship Tools at Large Great Lakes Industries

- Diverse set of tools useful but have implicit boundaries
- Risks in adapting tools for objectives not intended
- Other sustainability concerns are often missing
- No one tool addresses Great Lakes Compact/Agreement



Army Water Footprint

- Estimates the amount of water embedded in the goods and services the Army procures through the supply chain
- Sums the water footprints of all the products the Army procures
- **Recommendations**
 - Incorporate producer water use requirements and risk into Army policies and procedures
 - Identify installations dependent on water-intensive energy sources in areas of potential water scarcity

The Bellemeade

Walkable Watershed

- 5th grade students identified the priority walking routes to their school and community center
- Strategies put in Richmond's Stormwater Plan
- Developed a sense of community centered around the new school and the watershed
- Connected the neighborhood to the creek, the regional trail, and the James River
- **Lesson?** Think beyond the project scale to a watershed-wide strategy connecting multiple benefits

International Water Stewardship

- The Alliance for Water Stewardship's *International Water Stewardship Standard* – Ed Pinero, Chief Sustainability Officer, Veolia Water North America
- To support water users in taking appropriate actions to evaluate and improve their impacts on watersheds



Business Benefits of a Standard

- Water risk mitigation
 - Identify and respond to physical water risks
 - Remain in legal compliance
 - Enhance community standing and brand value
- Strategic opportunities
 - Improved access to finance
 - Potential for strategic partnerships and alliances
 - Improved access to socially and environmentally responsible markets
- Operational improvements
 - Drive innovation and new skill/technology development
 - Engage and motivate staff

Next Steps for the SWRR

- Continue roundtable outreach
 - Build regional connections
 - Add new private, nonprofit & public sector partners
- Assist agencies in developing programs and in describing the need for programs to collect indicator information
- Develop the SWRR ideas package



SWRR Ideas

- A handbook for sustainable watershed management
- A sustainable watershed index generator
- A framework for indicators in any watershed at any scale by any organization
- An evaluation of water footprint tools to help organizations understand water sustainability
- A web-based inventory of water sustainability indicators to share the best ways to grasp water trends

Contact Information

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