ITEM 6

Performance Measures: Discussion of Phase 1 Report

Information Item

Bay-Delta Public Advisory Committee

September 13, 2006

CALFED Bay Delta Program Indicators and Performance Measures

BDPAC September 13, 2006

Lauren Hastings
CALFED Science Program
hastings@calwater.ca.gov

More information available on Science Program website:
http://science.calwater.ca.gov/monitoring/monitoring.shtml#

Mission

To develop indicators and performance measures for the CALFED program that:

- Promote a greater scientific understanding of the system (indicators)
- Inform on progress towards goals (performance measures)

Vision

- Integrate into planning, implementation, monitoring, assessment and adaptive management
- Promote interdisciplinary understanding
- Integrate program elements – better understanding of linkages
- Document our current understanding of the system
- Make information accessible and understandable to all

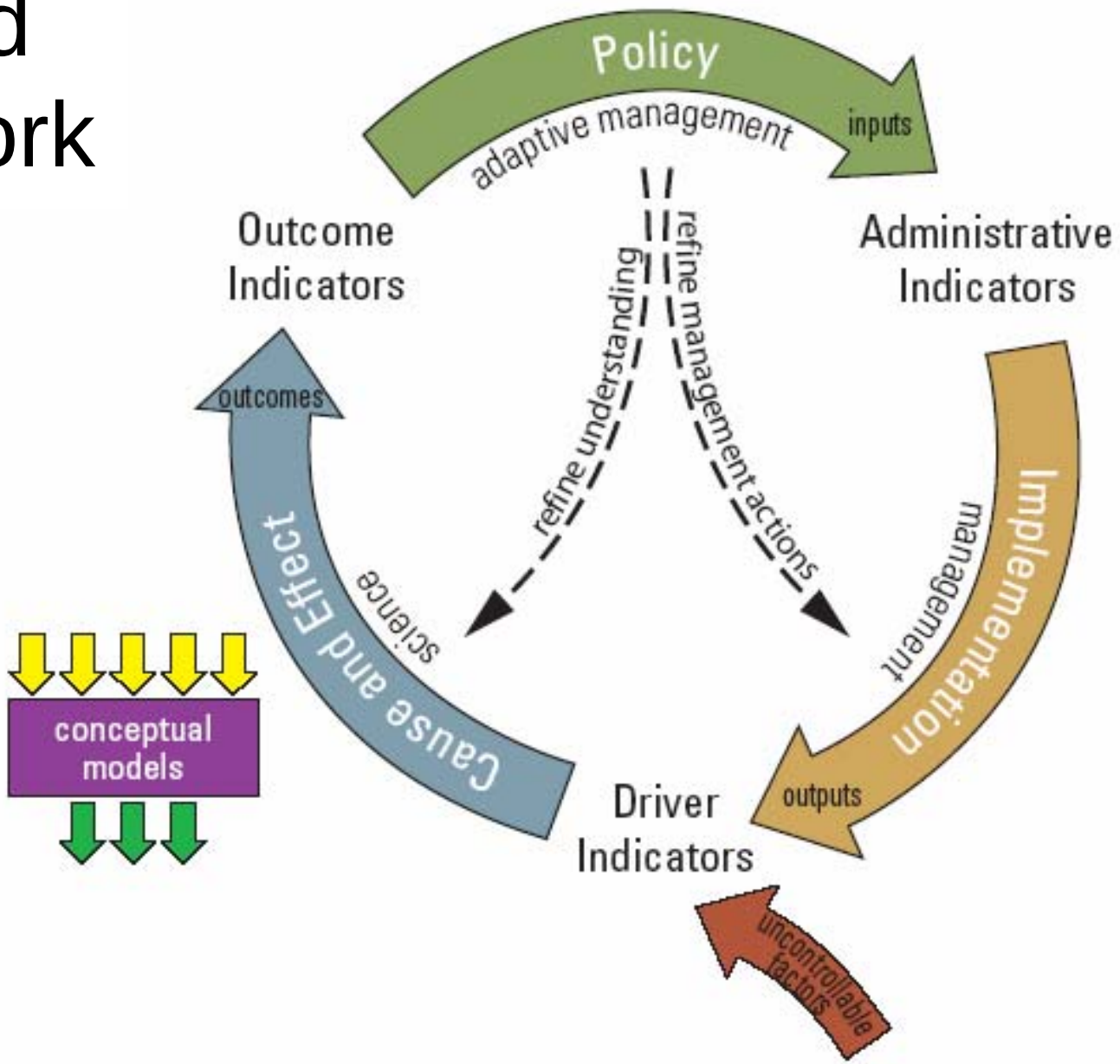
Three levels of indicators

1. Administrative
2. Drivers

   Management actions (outputs)

   + uncontrollable factors
3. Outcomes

Revised Framework

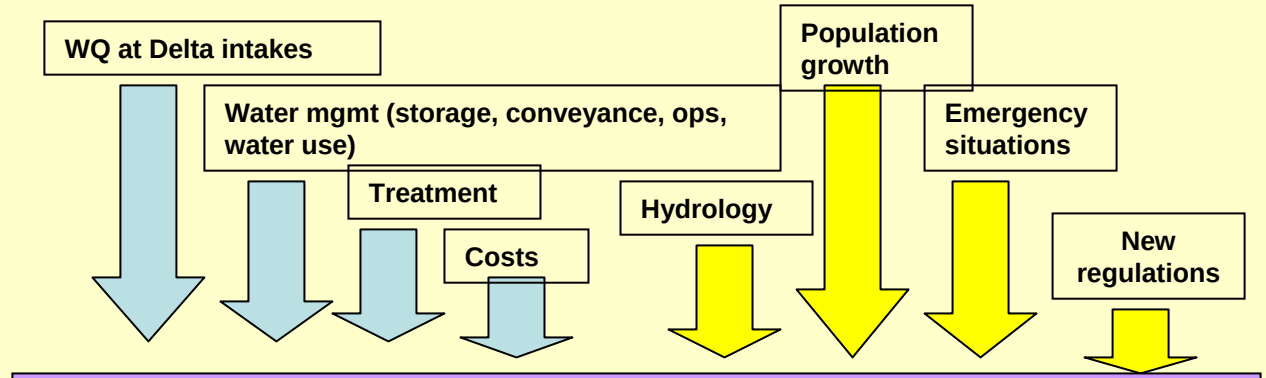


Benefits of conceptual models

- Emphasizes linkages between drivers and outcomes
- Documents rationale for decision making
- Allows multi-disciplinary review and discussion
- Reduces chances of faulty reasoning or unintended consequences
- Provides a basis for incorporating new information and continually improving knowledge of system

System-wide scale: Drivers and outcomes for drinking water quality

Drivers



System-wide evaluation summary

Conceptual Model: ELPH

Geographical model

Regional Evaluations

Outcomes

Public Health & Palatability at the tap

Treatment costs

Reliability & flexibility

Potential metrics

Percentage of deliveries meeting standards & benchmarks (for disinfection byproducts and major constituents)

$ per capita

$ per gallon

Capital outlays

% time meeting regs

Risk of failure / ability to respond to emergencies

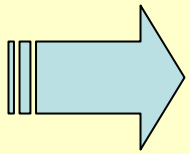
Likelihood of meeting regs in future

Communication Products

Promote greater scientific understanding

Web-based information for technical audience

- Easily accessible
- Frequently updated
- Summarize but drill down for details
- Organize scientific information – links to latest data and reports
- Conceptual models

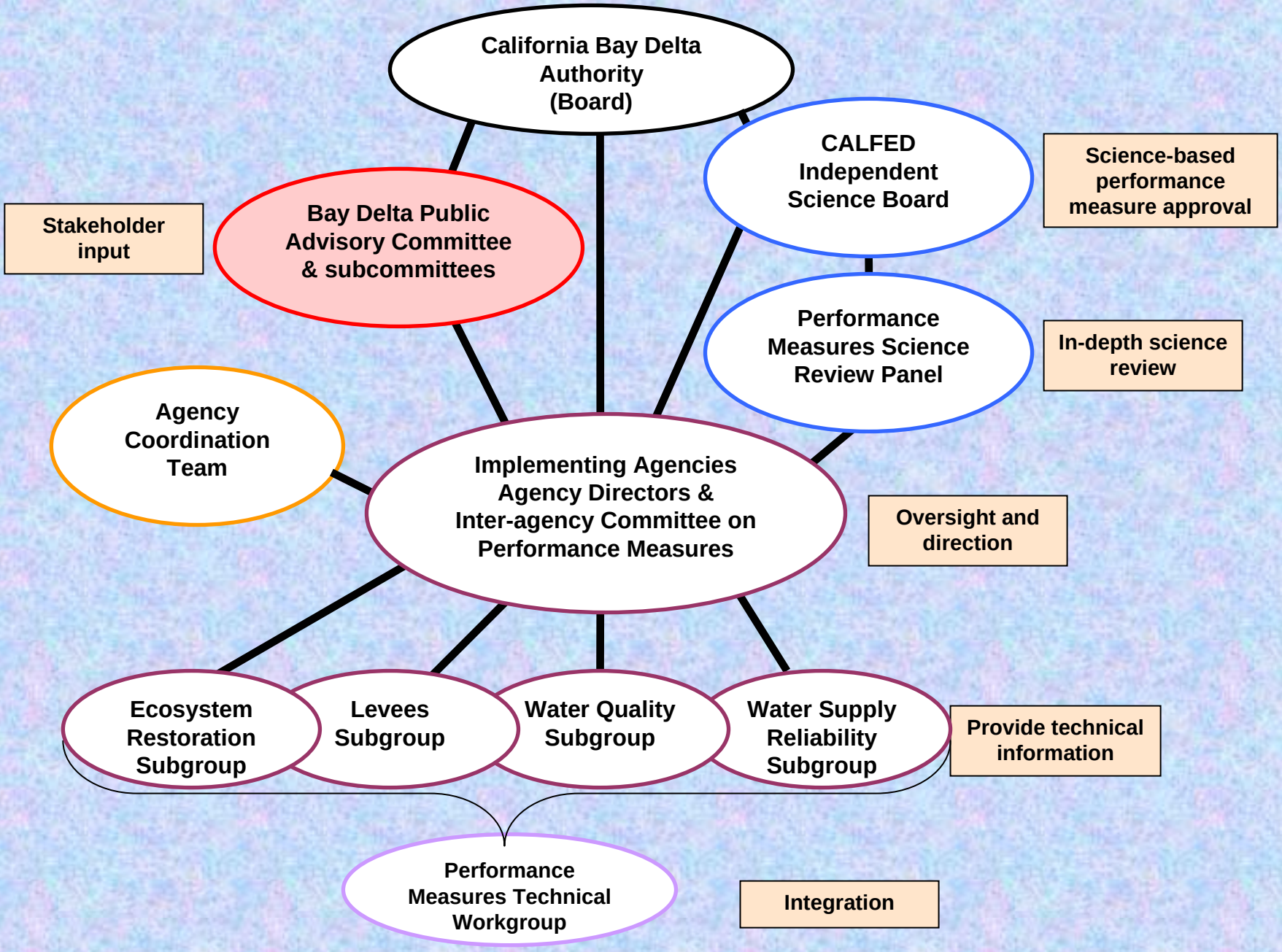


Inform on progress towards goals

Publication(s) for non-technical audience

- Annual summary
- More focus on performance measures

Flow of information among groups



Phased Approach

Phase 1: Identify core set of indicators and plan to complete development.

Phase 2: Implement plan to develop core indicators including web-based communication product.

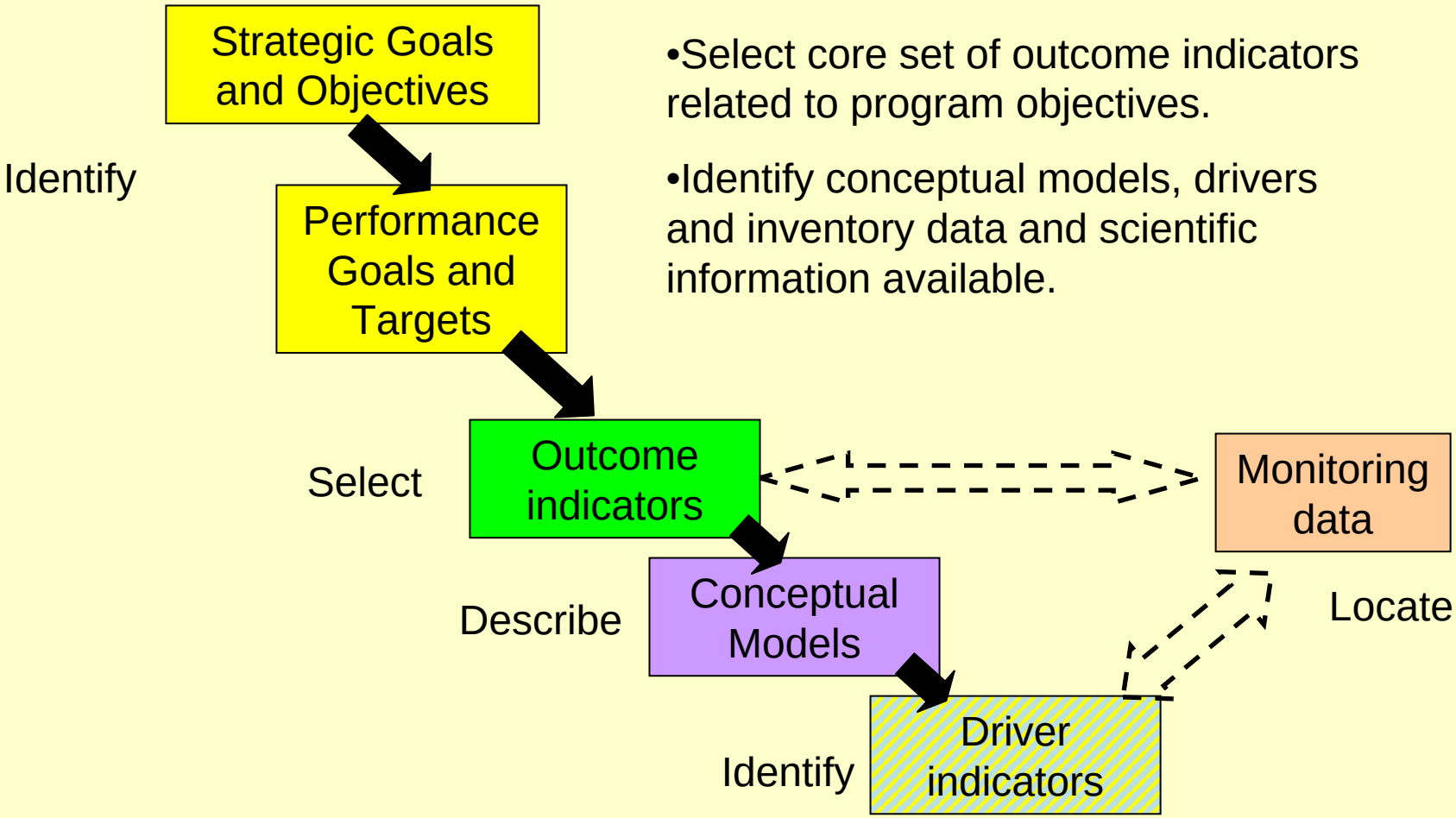
Phase 3: Revise web-based product. Develop information for publication.

Phase 4: Identify additional indicators and plan for development.

Independent Science Review for products of each phase

Outcome-based

Four subgroups focused on 4 CALFED Objectives



- Select core set of outcome indicators related to program objectives.
- Identify conceptual models, drivers and inventory data and scientific information available.

Phase 1 Report

- Overview of Framework and Approach
- Core set of outcome indicators with relationship to program goals & objectives
- Information inventory on indicators (monitoring data, conceptual models, drivers identified)
- Identify resources needed to complete
- Identify next steps and schedule

Status/Next Steps

- Phase 1 Report under development and review
- Subgroups have differing levels of progress - lack of resources at some agencies
- Will be discussed further in BDPAC subcommittees and brought to CBDA

Ecosystem Indicators and Performance Measures

BDPAC September 13, 2006

U.S. Fish and Wildlife Service
National Marine Fisheries Service
California Department of Fish and Game

Status of Performance Measures Effort

- ERP coordinating with Subcommittee and Science Program, but development of performance measures is encumbered
  - insufficient staffing and funding
  - Additional planning needed

Previous work on indicators and performance measures

- CMARP Technical Appendix (2000)
- TAMP Workshops (2000)
- Prototype performance measures (2003)
- DRERIP (ongoing)

Present ERP Progress Assessment

- Milestones per CALFED programmatic Biological Opinions
  - mid-Stage 1 milestones assessment (2004)
  - end Stage 1 milestones assessment (underway)

Near-Term Evaluations Needed

- End Stage 1 milestones
- CALFED conservation agreement
- CALFED regulatory requirements
- Ecological conditions
- BDCP provisions

Other Considerations

- DRERIP conceptual models
- CMARP activities
- IEP activities

Next Steps

- "Concept Paper" as roadmap (end Sept.)
  - End Stage 1 evaluations
  - Conservation strategy team
  - Conservation strategy for Stage 2
  - Staff and funding
  - Conceptual models and performance measures

Future Presentations to:

Ecosystem Restoration Subcommittee
September 20, 2006

CBDA
October 12, 2006

Performance Measures
Phase 1

Levee System Integrity

Performance Measures Phase 1 Water Quality Indicators

September 2006

CALFED Mission Statement

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

Provide good water quality for all beneficial uses.

Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.

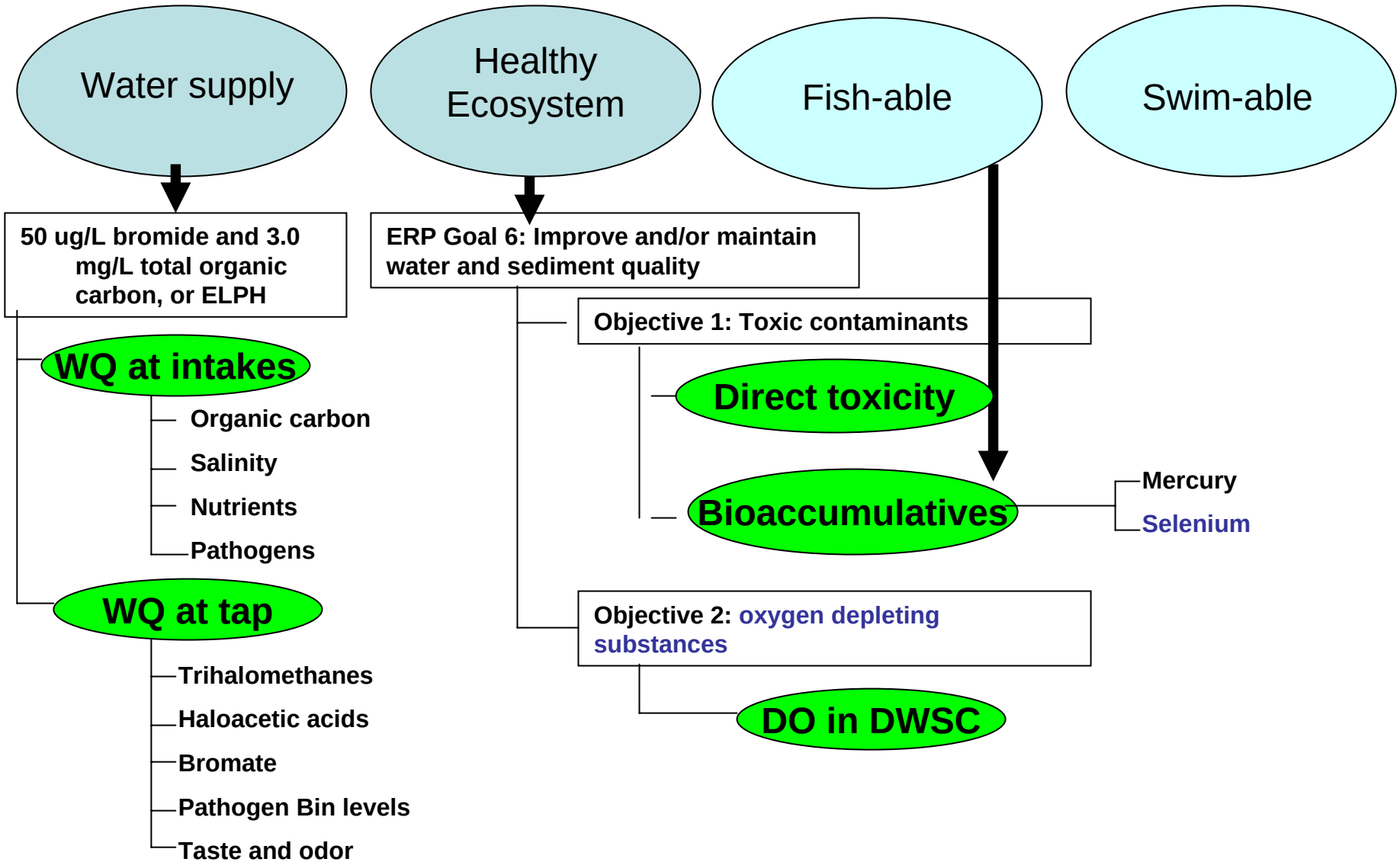
Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.

Reduce the risk to land use and associated economic activities, water supply, infrastructure and ecosystem from catastrophic breaching of Delta levees.

Criteria for Proposed Outcome Indictors

- Significance for ecosystem and/or human health
- CALFED Program investment and other agency priorities
  - Plans and projects
  - Research
  - *Available information*
- Importance to Delta

Provide good water quality for all beneficial uses.



Drinking water objectives:	**DW outcome indicators**:	
• Maintain water quality at the Delta intakes for safe, reliable drinking supplies • Drinking water quality at the tap that meets drinking water standards	• Intake water quality: organic carbon, salinity/bromide, nutrients, pathogens • Water quality “at the tap” for Delta providers: salinity, taste/odor, disinfection byproducts, treatment levels	
Toxicity objectives:	**Toxicity outcome indicators**:	
• Identify toxic constituents and reduce toxicity to aquatic organisms • Reduce loadings of toxic contaminants • Conduct studies to identify causes of unknown toxicity	• Indications that toxicity can be attributed to known sources • No likely significant aquatic toxicity • Establish if toxicity is a significant factor in POD; if so, identify contaminants and sources	
Mercury objective:	**Mercury outcome indicators**:	
• Improve and/or maintain water and sediment quality to levels that do not adversely affect aquatic organisms, humans, and wildlife	• Mercury concentrations in tissue of representative “sport fish” • Public health benefits • Mercury concentrations in tissue of representative biosentinels	

Drinking Water Quality

- Work by CALFED staff and implementing agencies:
  - Support Central Valley Drinking Water Policy
  - Support evaluation of Delta conveyance alternatives (Final Assessment)
- Progress on conceptual models, data collection, and assessment

Drinking Water Quality Next Steps

- Use Final Assessment and Central Valley Drinking Water Policy technical work to inform performance measures
- Resources needed:
  - Comprehensive data assessment
  - Strategic monitoring plan
  - Performance measures

Toxicity

- Indicator of ecosystem water quality
  - Identification of causes of toxic effects
  - Toxicity: lethal and sub-lethal
- Strategy to Address Toxicity of Unknown Cause *(CALFED Program, 2001)*
- Potential factor in Delta Pelagic Organism Decline

Toxicity Next Steps

- Update Toxicity Strategy: data gaps, comprehensive data assessment, expanded monitoring
- Refine conceptual models on ecosystem-level effects (POD)
- Fund research on biomarkers
- Additional resources in water quality and natural resource agencies needed for performance measures

Mercury (Hg)

- Human health and ecosystem impacts
- Certain habitats (wetlands, marshes) can be major sites of production of bioavailable Hg (methylmercury)
- “Mercury Strategy for the Bay-Delta Ecosystem” *(CALFED, 2003)*
- CALFED-funded mercury projects
- Regional Board TMDLs

Mercury next steps

- Comprehensive review and assessment based on research and human health projects
- Refine Mercury Strategy and monitoring
- Opportunities for monitoring and “experimental management” in wetlands
- Mercury coordinator
- Resources needed for performance measures

Key Messages

- Drinking water quality program has made most progress, due to work for priority end-of-Stage 1 decisions
- Recommend collaboration of agencies -- *especially water quality and ecosystem* -- for integrated indicators
- Water quality and ecosystem agencies currently lack resources to progress far on indicators for fish/wildlife and human health

BDPAC Subcommittee Review

- Ecosystem Restoration – Sept. 20
- Water Quality – Nov. 30

BDPAC Meeting
September 13, 2006

Performance Measures for the
CALFED Water Supply Reliability Program

Performance Measures Subcommittee

Water Supply Reliability Subgroup

CALFED Goal for Water Supply Reliability

"…reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system."

Key Issues and Principles

- Many beneficial uses dependent on Bay-Delta supplies, including:
  - Support for fish and wildlife
  - Maintaining water quality
  - Municipal and industrial use
  - Agricultural use

  (The SWRCB defines 24 categories of beneficial use.)

- Predicting future needs for fish and wildlife is challenging due to the dynamic nature of the Bay-Delta system and our evolving understanding of the science.

Key Issues and Principles

- We have capability to measure deliveries of Bay-Delta supplies for M&I and agriculture and experience in projecting future beneficial uses for these purposes.

- Until advances in science better define water relationships, the only available indicator of if sufficient water supplies are available for fish and wildlife and water quality beneficial uses is if performance measures for the ERP and Water Quality programs are being met.

Key Issues and Principles

- The scope of the CALFED water supply reliability goal should be refined to conform with the CALFED refocusing effort.

  Original CALFED Scope

  - Consider both Bay-Delta supplies and demand management tools to evaluate end-user water supply reliability.
  - This approach does not adequately account for alternative water supplies and the institutional and economic considerations that drive local and regional water management decisions.

  Revised CALFED Scope

  - Focus on optimizing Delta supplies and coordinate with California Water Plan update process to consider end-user water supply reliability.

Performance Objectives

- Performance Objective for "Direct CALFED" Actions

  Enhance Long Term Stability of Delta Water Supplies
  - Improvement of Water Quality and Fish Restoration
  - Maximize Sustainable Delta Deliveries with CALFED actions
  - Minimize unanticipated and uncompensated reductions in scheduled Delta water deliveries

- Performance Objective for "Coordinated CALFED" Actions

  End User Supply Reliability
  - Integrated Regional Water Management Plan Process
  - Developed with local and regional agencies
  - California Water Plan Update Process -- coordinated with CALFED

Next Steps

- Engage BDPAC Water Supply Subcommittee (October meeting)
- Recommendations to BDPAC
- Develop and refine indicators and targets
- Coordinate with California Water Plan Update process to develop end user WSR performance measures