

Agenda Item: 2
Meeting Date: August 15, 2006

Indicators and Performance Measures for the CALFED Bay-Delta Program

Summary: Science Program staff will provide an update on the revised framework, approach and progress to date for CALFED indicators and performance measures.

Action: Staff would like feedback from the ISB on the framework, approach and potential communication products.

Background: A specific charge to the ISB is to approve performance measures. The Charge states the ISB will “Evaluate and provide final approval of performance measures for the Bay-Delta Program, assuring scientific rigor and balanced interpretation of each measure and its updates”.

Over the past year, Science Program staff has worked with the implementing agencies to refine the framework, develop an approach and plan for developing performance measures. The revised framework has evolved from previous efforts using the same 3 “levels” of indicators:

1. administrative
2. drivers (includes both management actions and uncontrollable factors)
3. outcomes

The revised framework emphasizes the use of conceptual models to explain linkages between drivers and outcomes and also explains indicators in context of policy making, implementation, and adaptive management.

Working collaboratively with the implementing agencies, a phased approach is being used to develop indicators and performance measures. A “core” set of indicators closely related to program goals will be selected, data collected, analyzed and communication products developed. Then in further phases, a more comprehensive set of indicators will be developed building upon previous experience. There is an interagency committee directing the effort, which has formed 4 subgroups – one for each for the 4 CALFED objectives (water supply reliability, water quality, ecosystem restoration and levee system integrity). The initial task (Phase 1) is to choose the core set of indicators, determine the availability and comprehensiveness of monitoring data and conceptual models, and develop a schedule and plan (including additional resources needed) to collect, compile, analyze and report on data related to the outcome indicators. The “Phase 1 Report” is under development and will summarize the resources needed and plan for future phases. Some groups have been able to describe

a plan and schedule to complete this with existing resources, and others have not yet chosen the core set of indicators.

The reviews of the CALFED program by the Department of Finance and Little Hoover Commission emphasized the need for performance measures to report on progress towards goals. The 10-Year Action Plan gives responsibility to the CALFED implementing agencies to develop performance measures with guidance from the Science program.

Questions to ISB:

- Is the framework clear, flexible enough for the breadth of the CALFED program and does it promote sound science in the development and use of indicators and performance measures?
- Is the approach (phased approach, “top down” selection of indicators) likely to result in meaningful and scientifically sound indicators and performance measures?
- Is a web-based information organization, such as the examples shown, an effective tool for communication?
- We have had requests for a “report card” type of product. Is this a meaningful way of communicating this information?

Attachments:

Powerpoint slide handouts providing overview.

More detailed information is available at :

<http://science.calwater.ca.gov/monitoring/monitoring.shtml#>

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CALFED Bay Delta Program Indicators and Performance Measures

Update for ISB August 15, 2006
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Outline

Revised Framework
Process
Progress

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Website

More information on the following topics is available on our website:

- Historic documents
- Framework
- Approach
- Phase 1 Report

<http://science.calwater.ca.gov/monitoring/monitoring.shtml#>

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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)

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Vision

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

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Three levels of indicators

1. Administrative

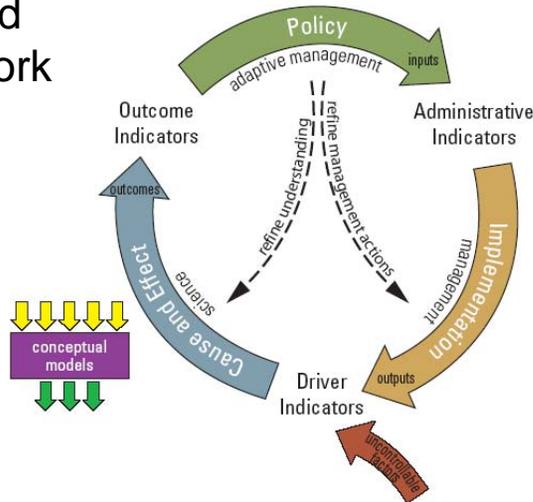
2. Drivers

Management actions (outputs)
+ uncontrollable factors

3. Outcomes

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Revised Framework



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Communication Products

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

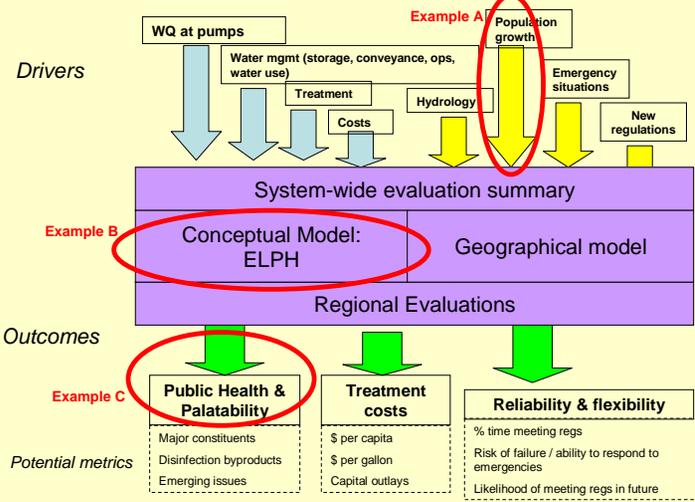


Publication(s) for non-technical audience

- Annual summary
- More focus on performance measures

9 Example of web-based information organization:

System scale: Drivers and outcomes for drinking water quality



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Example of web-based information organization: Example A

Driver: California Population Growth

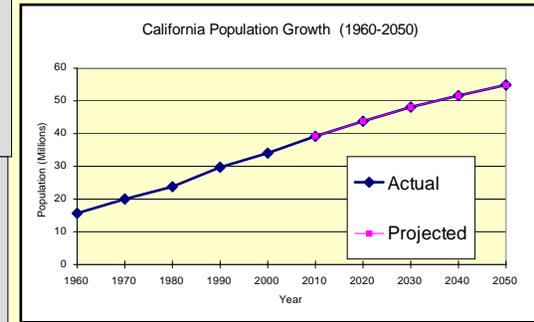
Introduction: Since 1960 to the present, California's population has doubled. The growing population creates increased demand for municipal water supplies. This increased demand can affect water supply reliability, and create a need for more water transfers, additional storage and conveyance. The increased municipal demand for water may create a need for improved infrastructure such as drinking water treatment systems and wastewater treatment. On the supply side, increased population can cause changes in land use patterns, such as conversion of agricultural land or habitat to urban or residential uses. These changes in land use can also affect the "hydrograph" or how the water runs off into the streams and rivers or seeps into the ground to supply groundwater. Increased urbanization of the watershed can result in more flooding (peak flows) and less water for groundwater replenishment. Land use changes may also result in changes in water quality in nearby and downstream water bodies.

Summary:

California population has grown from 15.7 million in 1960 to 34 million in 2000. The population is projected to continue a similar growth rate with an estimated population of 43.8 million in 2020 and nearly 55 million by 2050.

Links:

[Department of Finance Demographic information](#)
[California Water Plan Update 2005 Does California have the water to support population growth?](#)
[Research brief, Public Policy Institute of California](#)
[Paper: How we will grow, Baseline projections of the growth of California's footprint, UC Berkeley](#)



Source of data: Calif. Dept of Finance

11 Example of web-based information organization: Example B

Drinking Water Quality: System wide indicators and performance measures

Conceptual Model: Equivalent Level of Public Health (ELPH)

Introduction: The CALFED Record of Decision adopts goals for continuous improvement of waters of the Bay-Delta system and for water quality at the Delta intakes to be below 50 ppb bromide and 3 ppm total organic carbon OR an equivalent level of public health protection using a cost-effective combination of alternative source water, source control and treatment technologies. The ELPH conceptual model describes between various management options from source to tap to improve water drinking water quality from Delta supplies. Due to the variety of source waters and treatment technologies employed, each region and sub-region of the state face different opportunities and challenges in providing healthy drinking water. The ELPH conceptual model provides a common framework for the regional and local evaluations of how best to manage for cost-effective high quality drinking water. The CALFED Water Quality Program and its implementing agencies help provide a forum for the system-wide strategic analysis and projects that benefit the system as a whole.

Summary: The ELPH conceptual model provides a framework for considering different management options – from source to tap – for improving drinking water quality at the tap. Some of those options include source water protection / improvement, options for improved conveyance and operations of water moving through the Delta, increasing storage capacity, evaluating the potential for other local and imported sources of water, and improved treatment capabilities.



Links: [Conceptual framework](#)

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Example of web-based information organization: Example C

Drinking Water Quality: System wide indicators and performance measures

Outcome: Public Health and Palatability

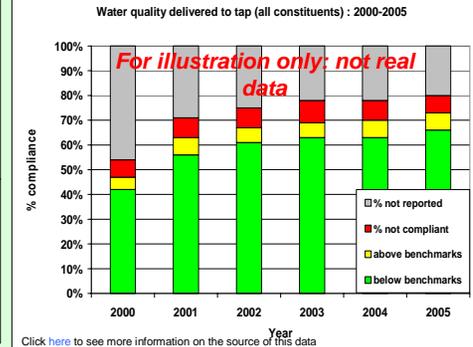
Introduction: This outcome indicator is a system-wide compilation of data about water quality at the delivery point – the tap. The approach to achieve "equivalent level of health protection" allows the use of many different tools, such as treatment, source water quality improvements, water transfers and blending to achieve water quality improvements for the end user. The graph at the right combines data on several major constituents: disinfection byproducts, salinity, pathogens, chloride, and nitrate. Several other "emerging contaminants are discussed below but are not included in this data summary.

Summary: In 2005, data were not available for 21% of deliveries, more than 1/3 of the deliveries were better than water quality standards and benchmarks for all constituents. There is cause for concern with 15% of the deliveries which were above water quality benchmarks or standards for at least one constituent.

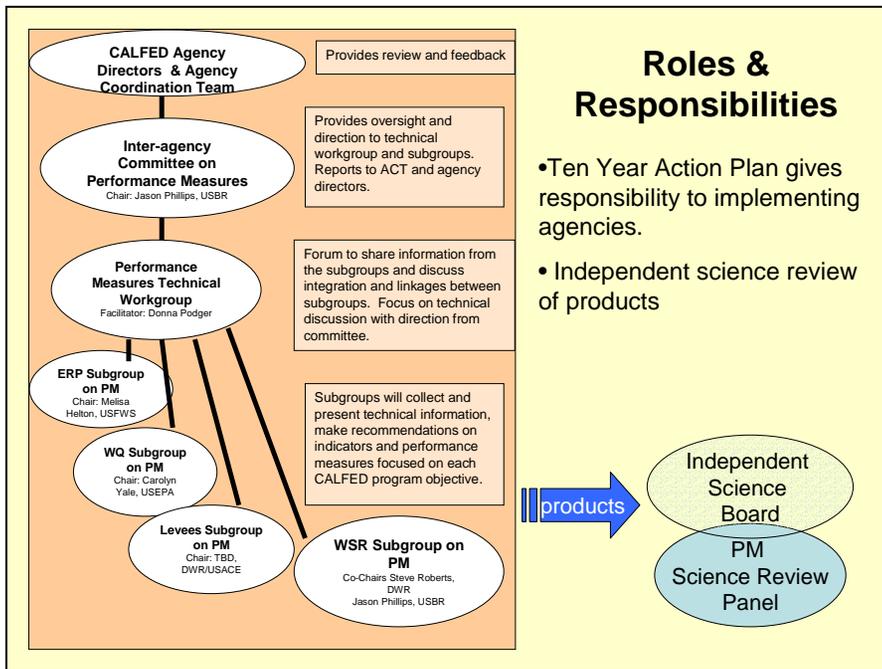
Links:

[Disinfection byproducts](#)
[Major constituents](#)
[Emerging issues](#)

[Department of Health Services database](#)
[Related projects](#)
[References](#)
[Geographic distribution of data](#)
[More information about specific constituents](#)

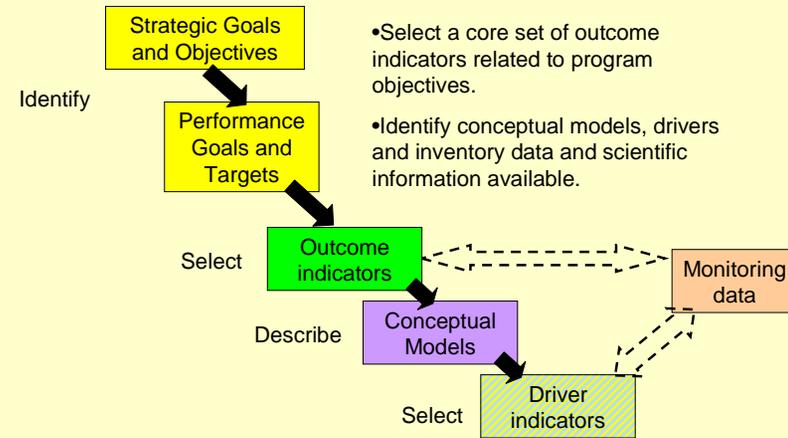


Click here to see more information on the source of this data



“Top-Down” Approach

Four subgroups focused on 4 CALFED Objectives



Phased Approach (& Timeline)

- **Phase 1:** Identify core set of indicators and plan to complete development. (Summer 2006)
- **Phase 2:** Evaluate and develop web-based communication product on core set of indicators. (Spring 2007)
- **Phase 3:** Revise web-based product. Develop information for publication. (Summer 2007)
- **Phase 4:** Develop more complete set of indicators (Fall 2007)

Independent Science Review for products of each phase

Phase 1 Report

- Overview of Framework and Approach
- Select core set of outcome indicators and describe relation to goals
- Information inventory on indicators (monitoring data, conceptual models, drivers identified)
- Identify resources needed to complete
- Identify next steps and schedule

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Progress

- Phase 1 Report under development
- Subgroups have differing levels of progress
- Lack of resources at some agencies
- Timeline may change

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Science Review

ISB Charge:

Approve performance measures. Evaluate and provide final approval of performance measures for the Bay-Delta Program, assuring scientific rigor and balanced interpretation of each measure and its updates.

Performance Measure Science Review Panel:

- In-depth review of products
- Panel findings reported to ISB with draft products
- 2 members from ISB

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Questions for ISB

- Feedback on framework
- Feedback on approach
- Ideas for communication products