Phase 4 of Bay-Delta Effort: Overview & Background

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Presentation Outline

- Definitions
- Phase 4 Overview – Flow Objectives for Priority Tributaries (Sacramento River focus)
- Next Steps
DEFINITIONS

Beneficial Uses
Public Trust
Flow Criteria vs Flow Objective
Beneficial Uses of Water: Water Rights

Beneficial uses of water, pertaining to water rights include: domestic; irrigation; power; municipal; mining; industrial; fish and wildlife preservation and enhancement; aquaculture; recreational; stock watering; water quality; frost protection; and heat control

-California Code of Regulations (CCR) §659-672
Beneficial Uses of Water: Water Quality Control Plan (Basin Plans)

Beneficial uses of waters of the state that may be protected against quality degradation include, but are not limited to: domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves
- Water Code §13050

- Examples: water contact recreation, cold and warm freshwater habitat, cold and warm water spawning habitat, agricultural supply, commercial and sport fishing, etc.
Public Trust

- The State Water Board is responsible for the protection of public trust uses, including:
  - commerce
  - navigation
  - recreation
  - and habitat for fish and wildlife

- The State Water Board must consider these responsibilities when planning and allocating water resources, and protect public trust uses whenever feasible
Flow Criteria vs Flow Objectives

**Flow Criteria**
- No regulatory effect
- Identifies range of instream flows for aquatic dependent species viability

**Flow Objectives**
- Have regulatory effect
- Balances public trust resources and other beneficial uses
- The quantity of instream flow required to maintain ecologically sustainable watersheds
- Tributary-specific flow objectives will be developed as a component of tributary-specific regulations or policies

**Other Beneficial Uses**
Phase 4 of Bay-Delta Effort
State Water Board Bay-Delta Activities

- **Phase 1:** Bay-Delta Plan review and update of the San Joaquin River flow and southern Delta salinity objectives and program of implementation
- **Phase 2:** Comprehensive review and update of other components of the Bay-Delta Plan and program of implementation
- **Phase 3:** Amendment of water rights and other measures to implement changes to the Bay-Delta Plan resulting from Phases 1 and 2
- **Phase 4:** Development and implementation of flow criteria and flow objectives for priority tributaries to the Sacramento-San Joaquin Delta watershed, with a focus on the Sacramento River watershed
Phase 4 Process

1. Development of non-binding flow criteria
2. Development of flow objectives and implementation plans
3. Development of regulations or policies for water quality control
4. Implementation of regulations or policies through conditioning of water rights and other measures as appropriate
Phase 4 Goals

- Focus on Sacramento River watershed
- Develop policies or regulations that establish flow objectives for a target of 4-5 priority tributaries in the Bay-Delta watershed by 2018
- Work to continue on remaining priority tributaries thereafter
Phase 4 Objectives

- Achieve characteristics of a natural hydrograph
  - Maintain inter-annual variability
  - Maintain intra-annual events

- Restore natural high flow recession rates
  - Prevent juvenile salmonid stranding
  - Promote riparian seed dispersal
  - Trigger natural species reproduction patterns
Phase 4 Objectives

- Restore natural geomorphic processes, to maintain channel habitat
  - Floodplain and side channel inundation
    - Rainfall runoff
    - Annual peak spring snowmelt period
  - Channel flushing flows
    - 1st annual significant fall or early winter event
  - Channel maintenance flows
    - 1.5-3 year return interval
  - Channel forming flows
    - 5, 10, and 15 year return interval
Phase 4 Objectives

- Restore self-sustaining resilient populations of anadromous salmonids and other native species by:
  - Addressing flow-related salmonid passage impediments
  - Increasing the quantity and quality of salmonid spawning and rearing habitat
  - Reducing water temperature
  - Restoring natural aquatic habitat connectivity
Phase 4 Objectives

- Preserve existing beneficial uses of water to the maximum extent possible
- Minimize impacts to water right holders
  - Provide a reliable water supply
  - Promote off-season deliveries and storage
  - Promote water conservation
Flow Criteria Methodology
Flow Criteria Method Objectives

- Leverage limited resources available to conduct needed studies over large geographic area
- Applicable to bulk of each tributary’s watershed
- Address multiple species or life stages and fluvial processes
- Responsive to critical and time-sensitive need to address flow-related impacts contributing to the decline of threatened and endangered species
Major Tributaries in the Phase 4 Planning Area (in alphabetical order)

<table>
<thead>
<tr>
<th>American River</th>
<th>Clear Creek</th>
<th>Mill Creek</th>
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<tbody>
<tr>
<td>Antelope Creek</td>
<td>Cosumnes River</td>
<td>Mokelumne River</td>
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<tr>
<td>Auburn Ravine</td>
<td>Cottonwood Creek</td>
<td>Paynes Creek</td>
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<tr>
<td>Battle Creek</td>
<td>Cow Creek</td>
<td>Stony Creek</td>
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<tr>
<td>Bear River</td>
<td>Deer Creek</td>
<td>Thames Creek</td>
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<tr>
<td>Big Chico Creek</td>
<td>Dry Creek</td>
<td>Yuba River</td>
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<tr>
<td>Butte Creek</td>
<td>Feather River</td>
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<tr>
<td>Calaveras River</td>
<td>McClure Creek</td>
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</tbody>
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Flow Objectives to be developed as part of Phase 1 Bay-Delta Plan Update

<table>
<thead>
<tr>
<th>Merced River</th>
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<tbody>
<tr>
<td>San Joaquin River</td>
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<td>Stanislaus River</td>
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<tr>
<td>Tuolumne River</td>
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Flow Criteria Development (to date)

- July 2013: State Water Board submitted Request for Recommendation of Method to Develop Flow Criteria for Priority Tributaries to the Sacramento-San Joaquin Delta to the Delta Science Program (DSP)
  - Scientifically Defensible
  - Cost-effective
  - Applicable to the bulk of each tributary’s watershed
  - Can be implemented in a timely fashion
Flow Criteria Development (to date)

- February 2014: Delta Science Program transmitted the report developed by an independent review committee - *Recommendations for Determining Regional Instream Flow Criteria for Priority Tributaries to the Sacramento-San Joaquin Delta*
- March 2014: State Water Board workshop on the Delta Science Program’s recommendation
DSP Panel Recommendation: Use of a Hybrid Approach

1. Stream and river classification based on geomorphic, hydrologic, geographic, and/or faunal characteristics
2. Hydrologic analyses that separate the hydrograph into flow regimes (blocks) and examine historical changes
3. Assessment of whether any site-specific field work is required in the catchment or river reach to address specific information gaps
4. Extrapolation of understanding of flow-ecology relationships from other sites to the study catchment or segment
5. Production of an environmental flow regime that meets the needs of species and ecosystem processes in the system
6. Assuring clear and transparent dialogue and interaction between scientists and stakeholders
7. Designing an effective adaptive management protocol with robust implementation measurements to support the decision-making process
Phase 4 Next Steps

- Develop *Strategy for Establishing Flows for Tributaries to the Bay-Delta* (Phase 4 Strategy); Anticipate Strategy will contain:
  - Goals and objectives of Phase 4 effort
  - Overview of process
  - Flow criteria methodology
  - Priority Tributaries

- **Timeframe:** Draft Strategy anticipated for release for public comment in early 2015
Phase 4 Resources

- Phase 4 Webpage:

- To receive email subscriptions:
  http://www.waterboards.ca.gov/resources/email_subscriptions/
  - Select “State Water Resources Control Board”
  - Enter email address and full name
  - Under Categories, select “Water Rights Topics”
  - Select “Delta Watershed Flow Objectives (Phase 4 of Bay-Delta effort)”
  - Click “Subscribe” button at top