Phase 4 of Bay-Delta Effort: Overview & Background

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CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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

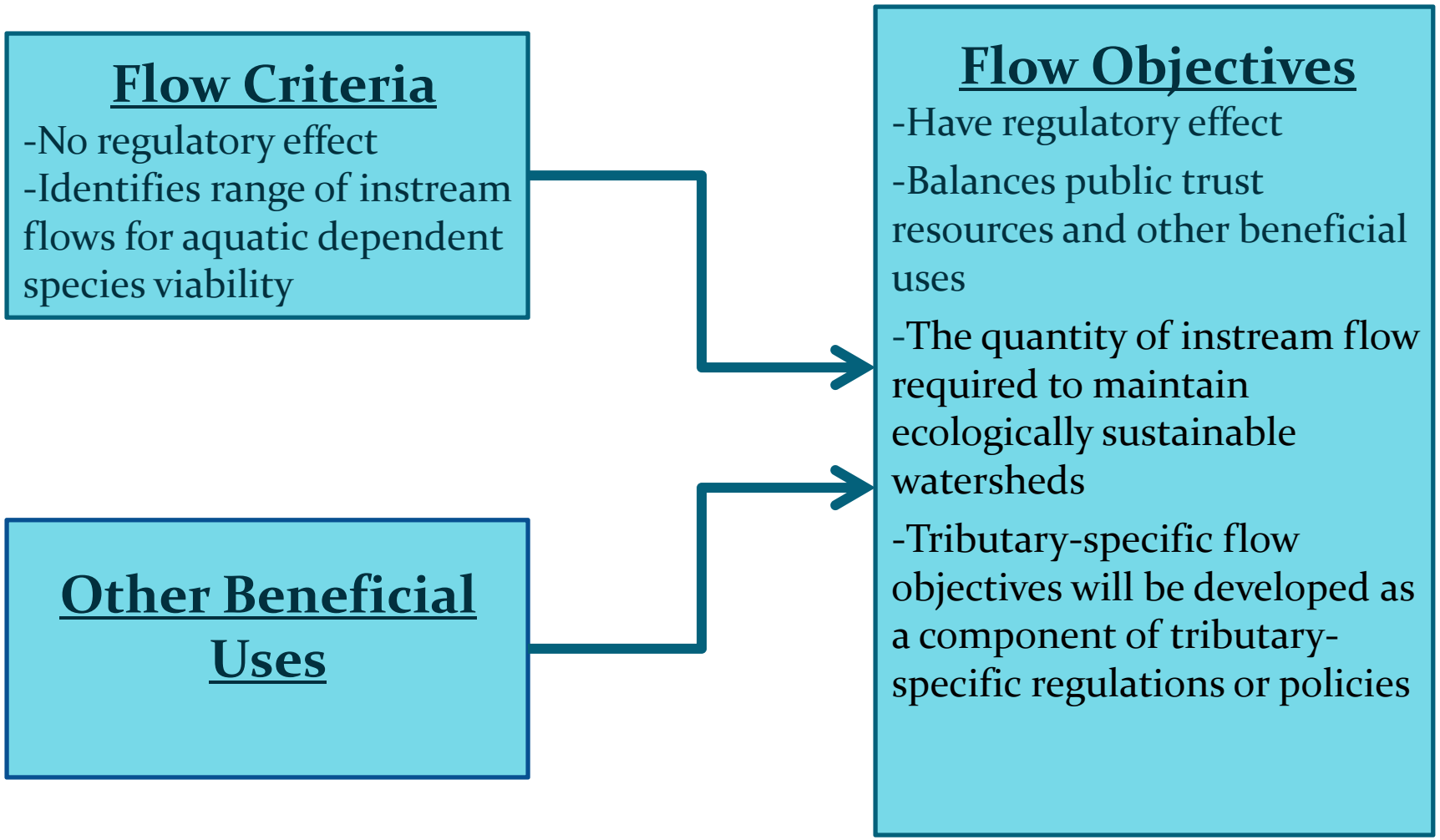
- Examples: water contact recreation, cold and warm freshwater habitat, cold and warm water spawning habitat, agricultural supply, commercial and sport fishing, etc.

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



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

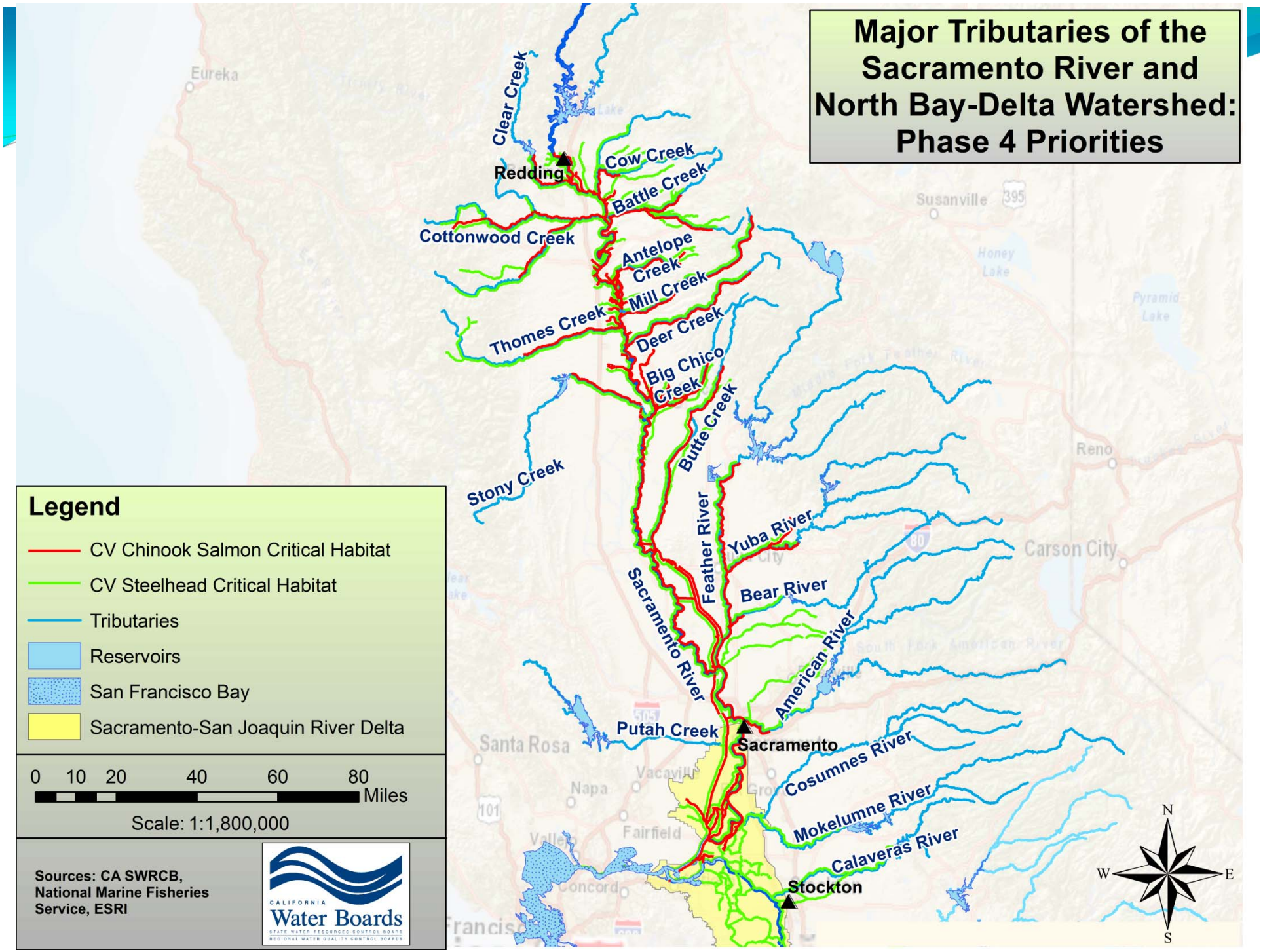
- Preserve existing beneficial uses of water to the maximum extent possible
- Minimize impacts to water right holders
  - Provide a reliable water supply
  - Promote off-season deliveries and storage
  - Promote water conservation

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 of the Sacramento River and North Bay-Delta Watershed: Phase 4 Priorities



Legend

- CV Chinook Salmon Critical Habitat
- CV Steelhead Critical Habitat
- Tributaries
- Reservoirs
- San Francisco Bay
- Sacramento-San Joaquin River Delta

0 10 20 40 60 80 Miles

Scale: 1:1,800,000

Sources: CA SWRCB, National Marine Fisheries Service, ESRI

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Major Tributaries in the Phase 4 Planning Area (in alphabetical order)

American River	Clear Creek	Mill Creek
Antelope Creek	Cosumnes River	Mokelumne River
Auburn Ravine	Cottonwood Creek	Paynes Creek
Battle Creek	Cow Creek	Stony Creek
Bear River	Deer Creek	Thomes Creek
Big Chico Creek	Dry Creek	Yuba River
Butte Creek	Feather River	
Calaveras River	McClure Creek	

Flow Objectives to be developed as part of Phase 1 Bay-Delta Plan Update

Merced River
San Joaquin River
Stanislaus River
Tuolumne River

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:

  http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/flow_objectives/index.shtml

- To receive email subscriptions:

  http://www.waterboards.ca.gov/resources/email_subscriptions/

  - Select "State Water Resources Control Board"
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