

BDCP Chapter 3 Conservation Strategy

Presentation to
BDCP Steering Committee
July 30, 2009

Major Sections of Chapter 3 Conservation Strategy

- 3.1 Introduction
- 3.2 Overview of Conservation Approach
- 3.3 Biological Goals & Objectives
- 3.4 Conservation Measures
 - 3.4.1 Water Operations Conservation Measures
 - 3.4.2 Physical Habitat Conservation Measures
 - 3.4.3 Other Stressor Conservation Measures
 - 3.4.4 Avoidance & Minimization Conservation Measures
- 3.5 Monitoring & Research Program
- 3.6 Adaptive Management Program

Process of Conservation Strategy Development

- Planning Agreement – Oct 2006
- Stressors identified; Options evaluated - 2007
- Points of Agreement Document – Nov 2007
- Independent Science Reports
 - BDCP Conservation Principles – Nov 2007
 - Terrestrial Species – Nov 2009
 - Adaptive Management – Feb 2009
- Draft conservation measures – Oct 2008
- Overview of Draft Conservation Strategy – Dec 2008-Jan 2009
- Working Groups & Technical Teams Jan 2008-present
- DRERIP Analysis and Synthesis Team – Nov 2008-June 2009
- Steering Committee – 2006-present

Biological Goals and Objectives

- Goals – broad guiding principles
- Objectives – specific and measurable – address specified “problem statements”
- Based on species and ecosystem stressors
- Address covered species critical habitat
- Ecological hierarchy
 - Ecosystem
 - Natural Communities
 - Covered Species

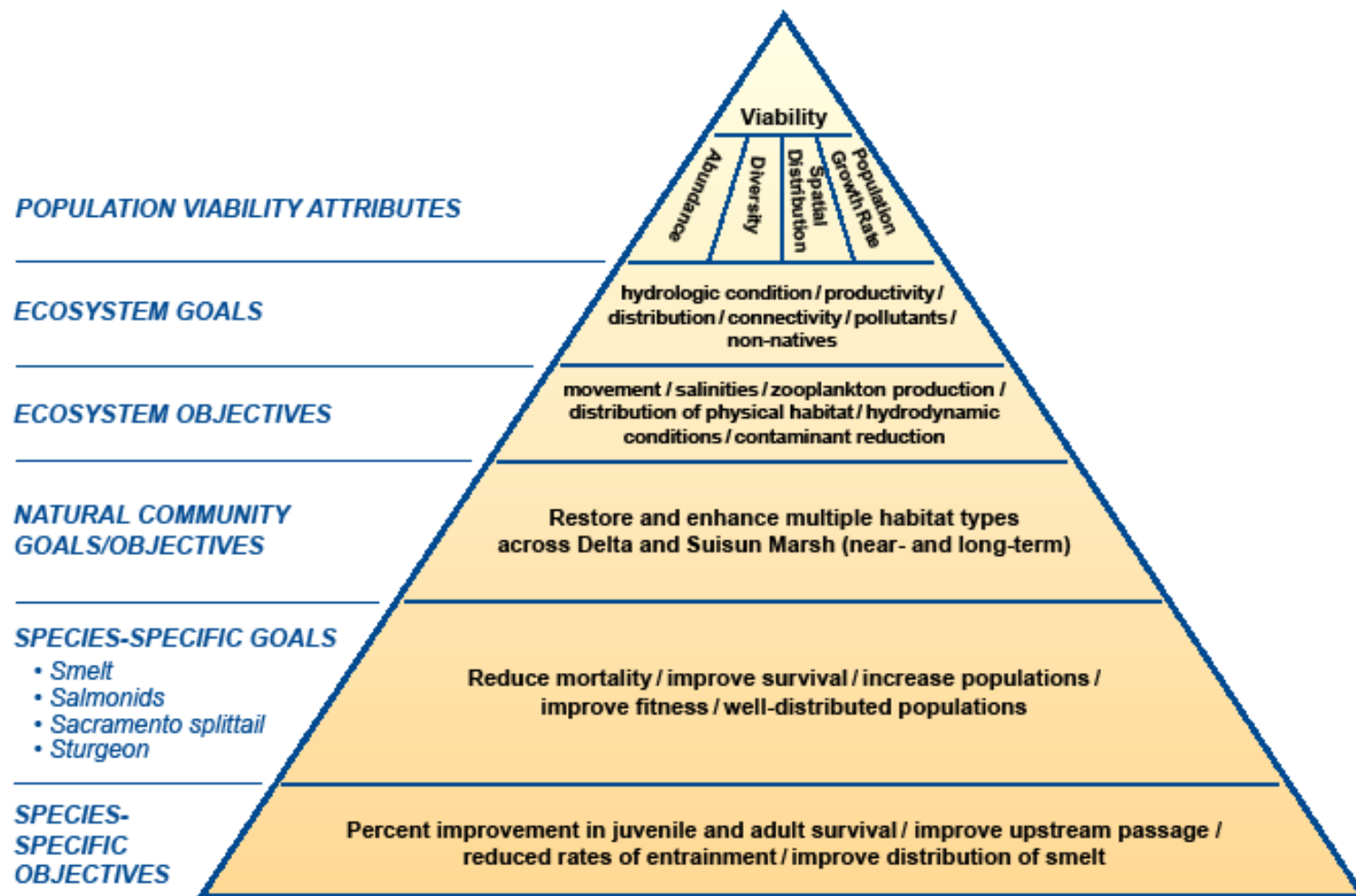


Figure 3.2
Relationships Among Goals and Objectives Tiers

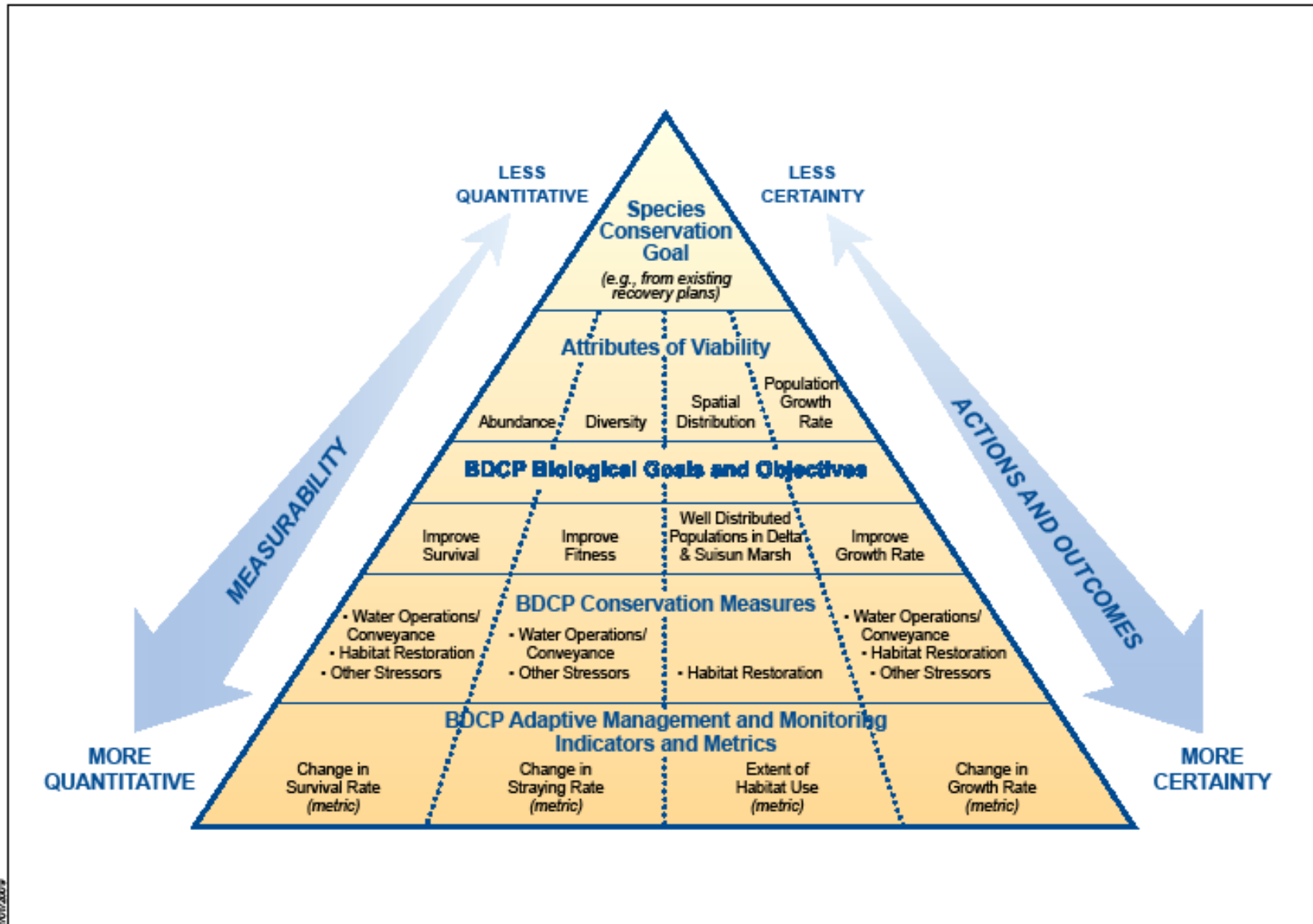


Figure 3.3
 Biological Goals and Objectives: Relationships with Broader Goals, Conservation Measures, Adaptive Management, and Monitoring

Implementation Timeframe

- Near-Term Implementation
 - Following authorization/permitting
 - Prior to operational isolated conveyance (i.e., through Delta operations only)
- Long-Term Implementation
 - Begins at start of dual operations (North Delta and South Delta diversion facilities)
 - Runs through end of permits

Conservation Measures

- Water Operations Conservation Measures
- Physical Habitat Conservation Measures
- Other Stressor Conservation Measures
- Avoidance & Minimization Conservation Measures
- Measures address biological goals and objectives
- Specific problem statements and testable hypotheses associated with each measure
- Specific metrics and targets identified or in development
- Specific monitoring requirements under development
- Tied to adaptive management program

Water Operations Conservation Measures

– Near Term

- Through-Delta conveyance, only
- Have not identified operational criteria at this time

Water Operations Conservation Measures

– Long Term

- New North Delta diversions (5 diversion points)
- Dual operations with existing South Delta diversions (SWP and CVP)
- Flexibility of operations among North Delta diversions and between North and South Delta diversions

Existing and proposed new water control facilities

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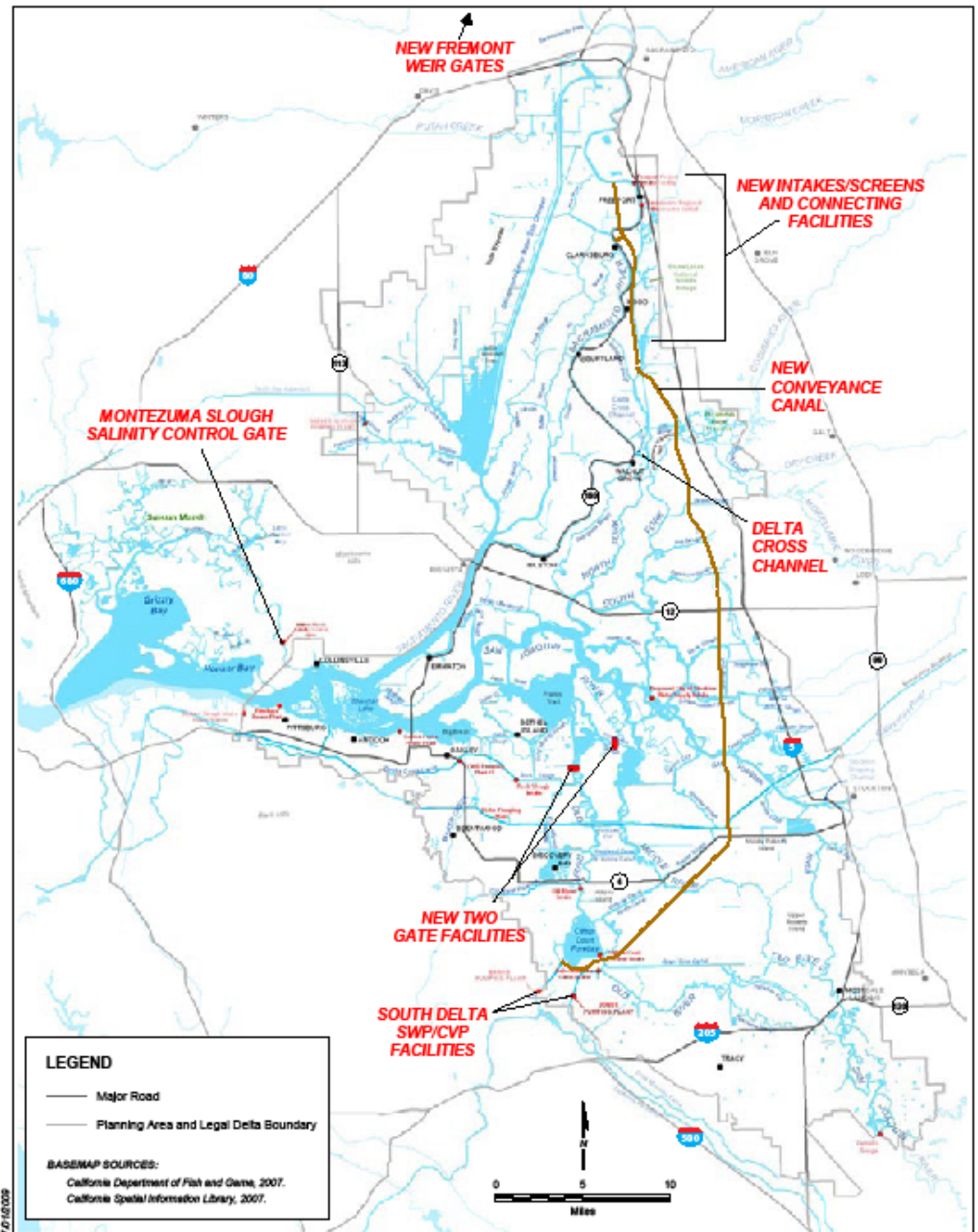


Figure 3.4
Water Operations Control Facilities in the Delta (Existing and New)

Water Operations Conservation Measures

– Long Term (cont.)

- Table 3.5 Long-Term Operational Criteria and Adaptive Range Limits (*Current numbers for impact and conservation analysis*)
 - North Delta diversions
 - South Delta diversions
 - Fremont Weir/Yolo Bypass
 - Delta Cross Channel
 - Rio Vista Flows
 - Delta Outflow (Inflow)
 - In-Delta Water Quality
- Adaptive range operations in development (see Steering Committee handout)

Physical Habitat Conservation Measures

- Restoration goal of 80,000 acres
 - Tidal marsh restoration – 65,000 acres
 - Riparian habitat – 5,000 acres
 - New floodplain habitat – 10,000 acres
- Enhanced floodplain habitat – Yolo Bypass
- Preservation of existing and restoration of terrestrial and non-tidal wetland habitat to support wildlife and plants (in development, not yet in the conservation strategy)

Restoration Opportunity Areas (ROAs)

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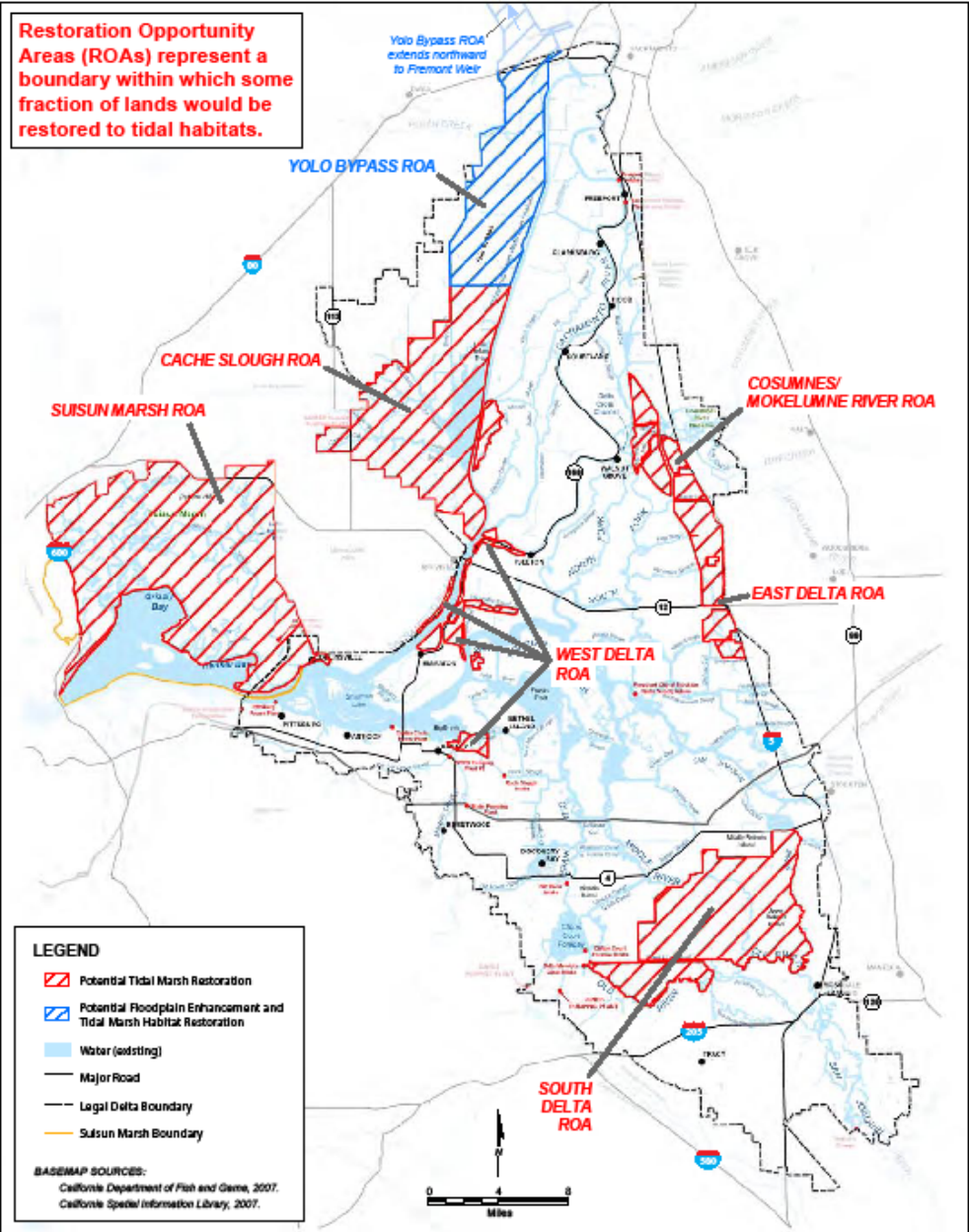


Figure 3.1
Restoration Opportunity Areas (ROAs)

Tidal Marsh Restoration

- 65,000 acres freshwater and brackish marsh restoration distributed across the Delta within ROAs
 - 14,000 ac by year 10
 - 25,000 ac by year 15
 - 65,000 ac by year 40
- Target includes intertidal marsh, subtidal estuarine, and upland sea level rise accommodation
- Minimum restoration extent for each ROA
- Near-Term: focused on Cache Slough, Suisun, and West Delta ROAs
- Long-Term: continue to expand tidal marsh within above ROAs and add Cosumnes-Mokelumne, East Delta, and South Delta ROAs

Channel Margin Habitat Enhancement

- 20 linear miles of enhancement throughout Delta
- Improve fish habitat along banks/levees
- Improve bank and channel physical geometry
- Restore/enhance riparian (shaded riverine), marsh, mudflat habitat

Riparian Habitat Restoration

- 5,000 acres riparian forest and scrub restoration distributed across the Delta
 - 1,300 ac by year 10
 - 2,300 ac by year 15
 - 5,000 ac by year 40
- Riparian forest and scrub restoration associated with:
 - Tidal marsh restoration in ROAs
 - Channel margin habitat restoration
 - New seasonally inundated floodplain restoration

Seasonally Inundated Floodplain Restoration

- 10,000 acres of floodplain restoration distributed along suitable channels across the Delta
 - 1,000 ac by year 15
 - 10,000 ac by year 40
- Conducted in association with flood control programs (USACE, DWR, others)
- Design Elements
 - Levee setbacks
 - Land surface re-contouring
 - Natural meander belts between new levees
 - Active and passive riparian habitat restoration

Other Stressors Conservation Measures

- Reduce toxic contaminants
- Reduce low dissolved oxygen areas
- Reduce the risk of and improve response to new invasions by non-native species
- Reduce the number of non-native predators
- Reduce illegal harvest of covered species
- Reduce genetic and ecological impacts of hatcheries
- Reduce wild salmon loss to commercial fisheries
- Expand propagation programs for Delta and longfin smelt
- Reduce entrainment at non-project diversions
- Improve out-migrating salmon survival by redirection with non-physical barriers

Reduce toxic contaminants and low dissolved oxygen areas

- Wastewater facilities (23): ammonia/um, endocrine disruptors, pesticides
- Stormwater/Urban run-off: oil and grease, pesticides
- Methylmercury input from upstream and in-Delta sources
- Agricultural run-off: pesticides, herbicides
- Stockton Deepwater Ship Channel
 - low DO area
- Managed seasonal wetland – low DO areas



Reduce the risk of and improve response to new invasions by non-native species

- More inspections stations
- More inspections of watercraft & trailers
- More wash stations
- Education programs
- Rapid detection and response program

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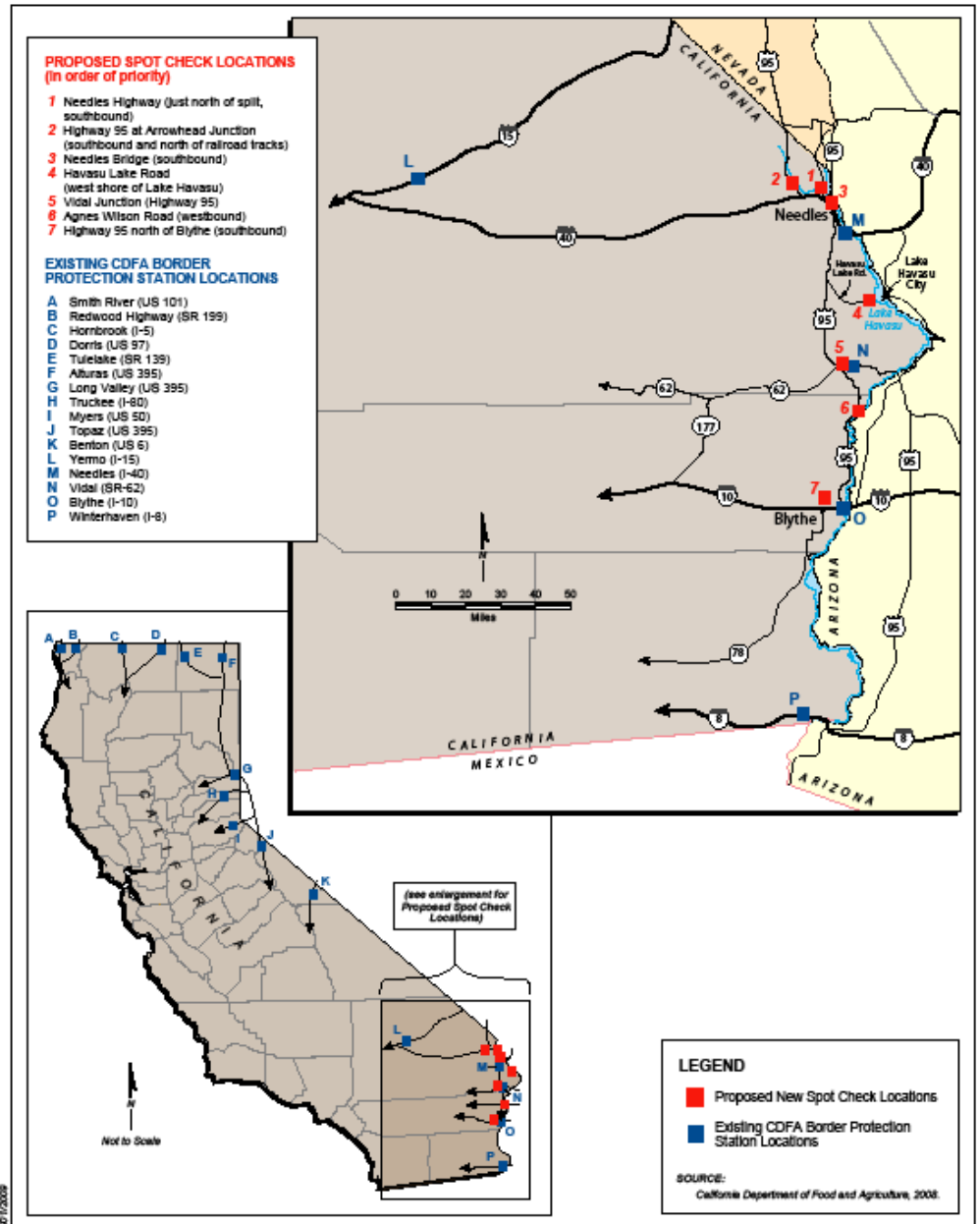


Figure 3.6 Existing CDFA Border Protection Station Locations and Proposed New Spot Check Locations in California

Reduce the number of non-native predators

- Remove submerged aquatic and floating aquatic vegetation that supports predator habitat
- Increase harvest of non-native predators
- Local predator control at high predator density locations

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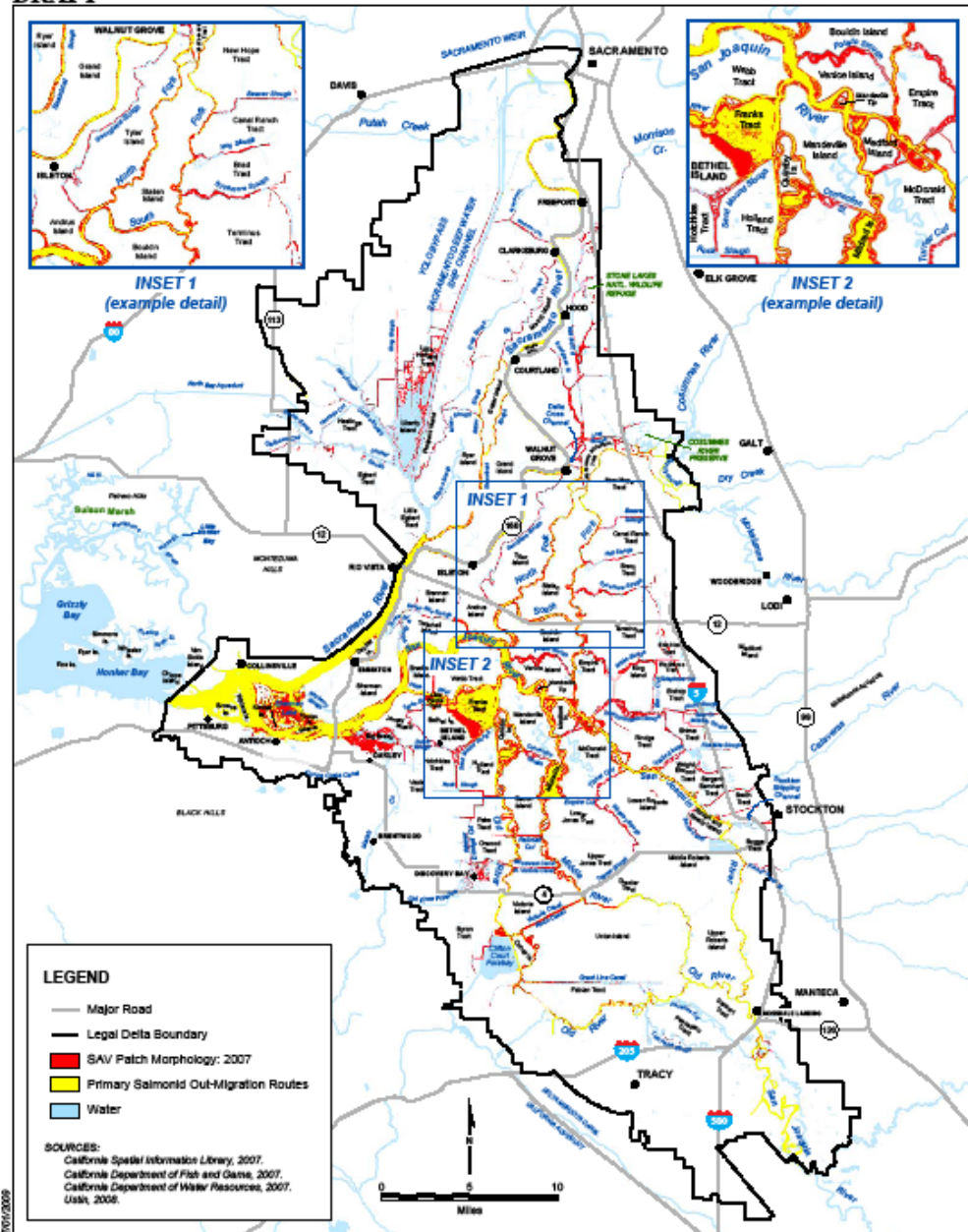


Figure 3.8
Overlap of SAV 2007 Distribution and Primary Salmonid Outmigration Routes

Reduce entrainment at non-project diversions

Approximately 2,200 diversions
in the Delta

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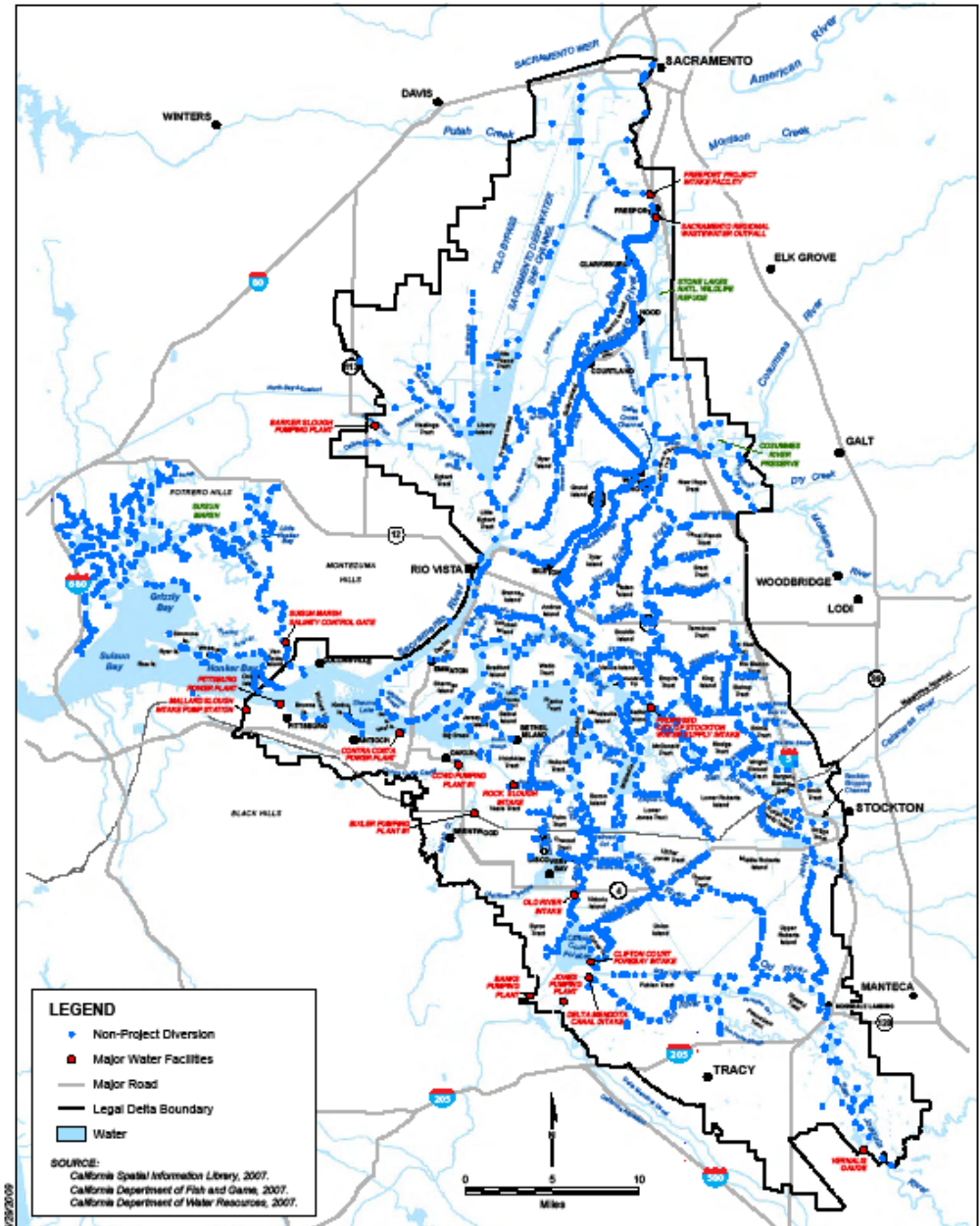


Figure 3.9
Locations of Non-Project Diversions in the BDCP Planning Area and Suisun Marsh

Avoidance and Minimization Measures

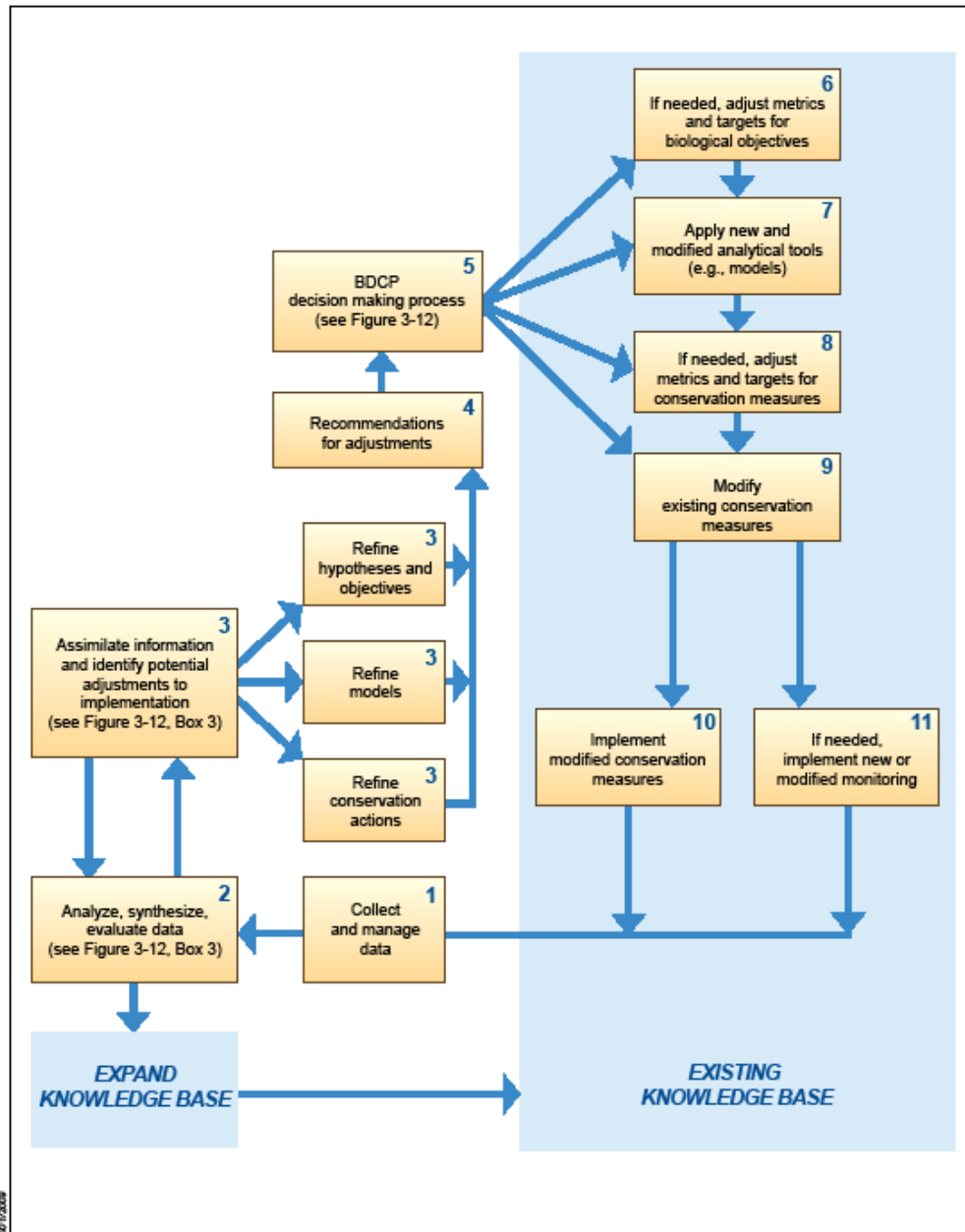
- Measures to reduce adverse effects of facilities construction and tidal restoration on terrestrial and non-tidal wetland covered wildlife and plant species
- Currently under development, not yet in the Conservation Strategy

Monitoring and Research Program

- Preconstruction surveys (avoidance & minimization)
- Construction monitoring (avoidance & minimization)
- Compliance monitoring (permit terms)
- Effectiveness monitoring (targets)
- System monitoring (Delta-wide status)
- Research program
- Data analysis & database management
- Reporting

Adaptive Management Program

- Adaptive Management Process Framework
- Adaptive Management Decision Making
- Concept of a “Defined Adaptive Range”
- Adaptive Management Triggers
- Adaptive Management Experiments (not yet prepared)
- Program Status Reviews (not yet prepared)



BDCP Adaptive Management Process

Figure 3.11
BDCP Adaptive Management Process Framework

BDCP Decision Making Process

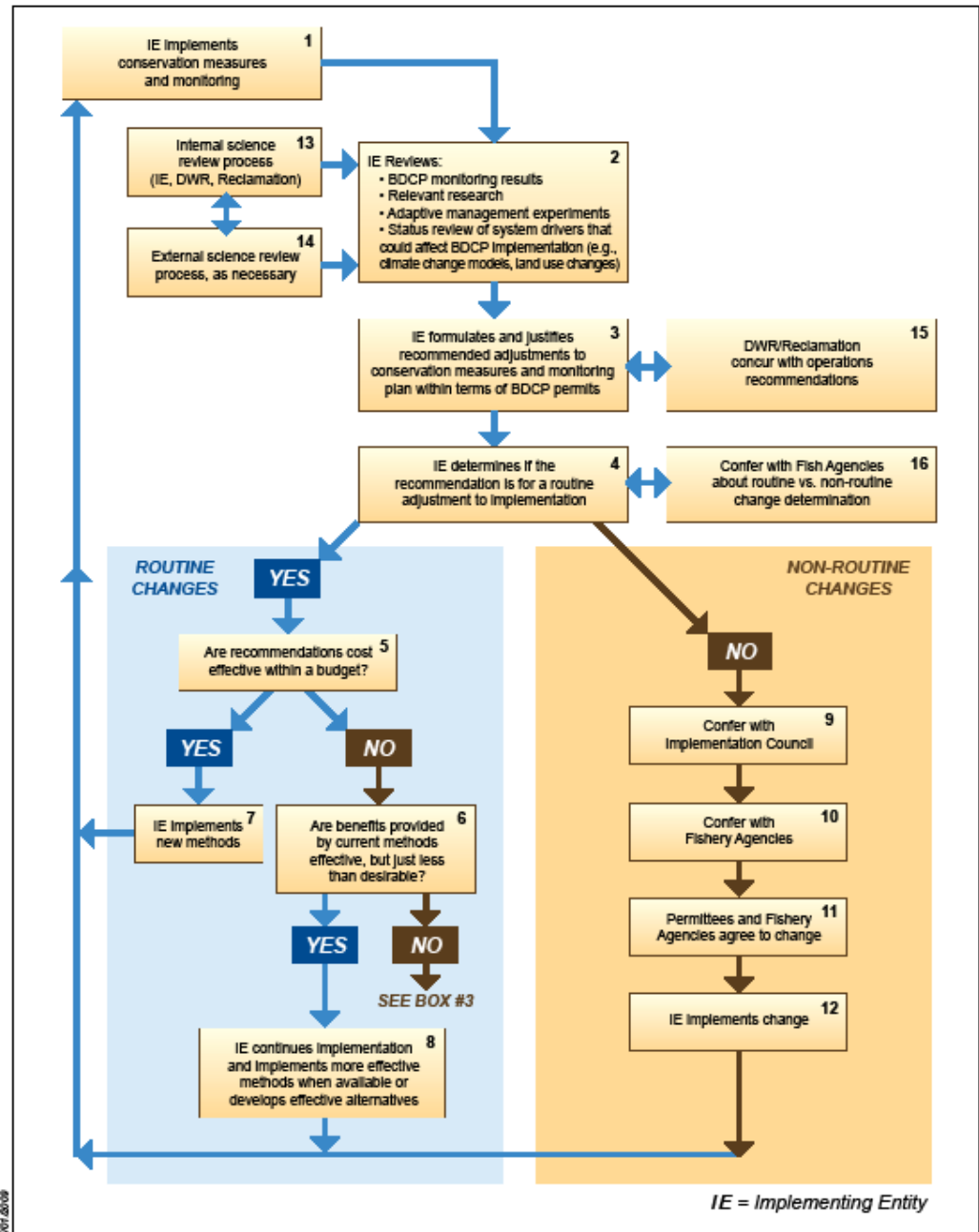
Routine:

- Smaller changes
- Faster
- Less process

Non-routine:

- Larger changes
- Slower
- More process

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Figure 3.12
BDCP Adaptive Management Decision Making Process

Concluding Remarks

- Comprehensive Conservation Strategy
- Addresses a wide range of the most important stressors on covered fish species and the aquatic system
- Learning and flexibility built into the strategy
- Terrestrial resources conservation measures still in development
- Working draft document
- Much progress
- Still much more to do...