

BDCP

BAY DELTA CONSERVATION PLAN

Introduction to the DRAFT BDCP Fish Effects Analysis

Presentation to the Yolo Bypass Fishery
Enhancement Planning Team

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- Effects Analysis Purpose
- Effects Analysis Approach
- Analysis Tools and Methods

Purpose of the Effects Analysis

- Determine the net effects of BDCP on covered species and natural communities (Conveyance and Conservation Actions)
- Provide necessary information for ESA and NCCP Act permitting
- Provide foundation for analysis of alternatives
- Full EIR/EIS analysis is outside of scope

Organization of the Effects Analysis

- Organized by
 - Stressor (i.e., passage obstruction)
 - Geographic subregion (Yolo Bypass)
 - Species and life stage (sturgeon adults)
- Final conclusions will be presented for each species by 'rolling-up' the cumulative effects for each stressor, subregion and lifestage for each species

- Appendix Availability
 - Flow/Passage (Available 12/12/11)
 - Toxins (1/6/12)
 - Fish Life Cycle Models (12/12/11)
 - Habitat Restoration (1/13/12)
 - Ecological Effects (12/16/11)

Draft Fish Effects Analysis

- Flow/Passage Appendix
 - Passage improvements (DRERIP, CALSIM)
 - Rearing/spawning habitat improvements (MIKE-21, CALSIM, splittail HSI)

- Toxins Appendix
 - Conceptual and numeric model used to assess the potential for methylmercury/copper production/suspension into environment
- Fish Life Cycle Models Appendix
 - Includes winter-run Chinook salmon life-cycle models (OBAN/IOS) that incorporate Yolo Bypass as an alternative migratory pathway or as rearing habitat

Draft Fish Effects Analysis

- Habitat Restoration Appendix
 - Assign habitat ratings for species life stages that use the bypass
 - Determine the net value/habitat units of each ROA for each species
 - Calculate the potential for food production
- Ecological Effects
 - Conceptual models to determine the potential for food web enhancements from each ROA

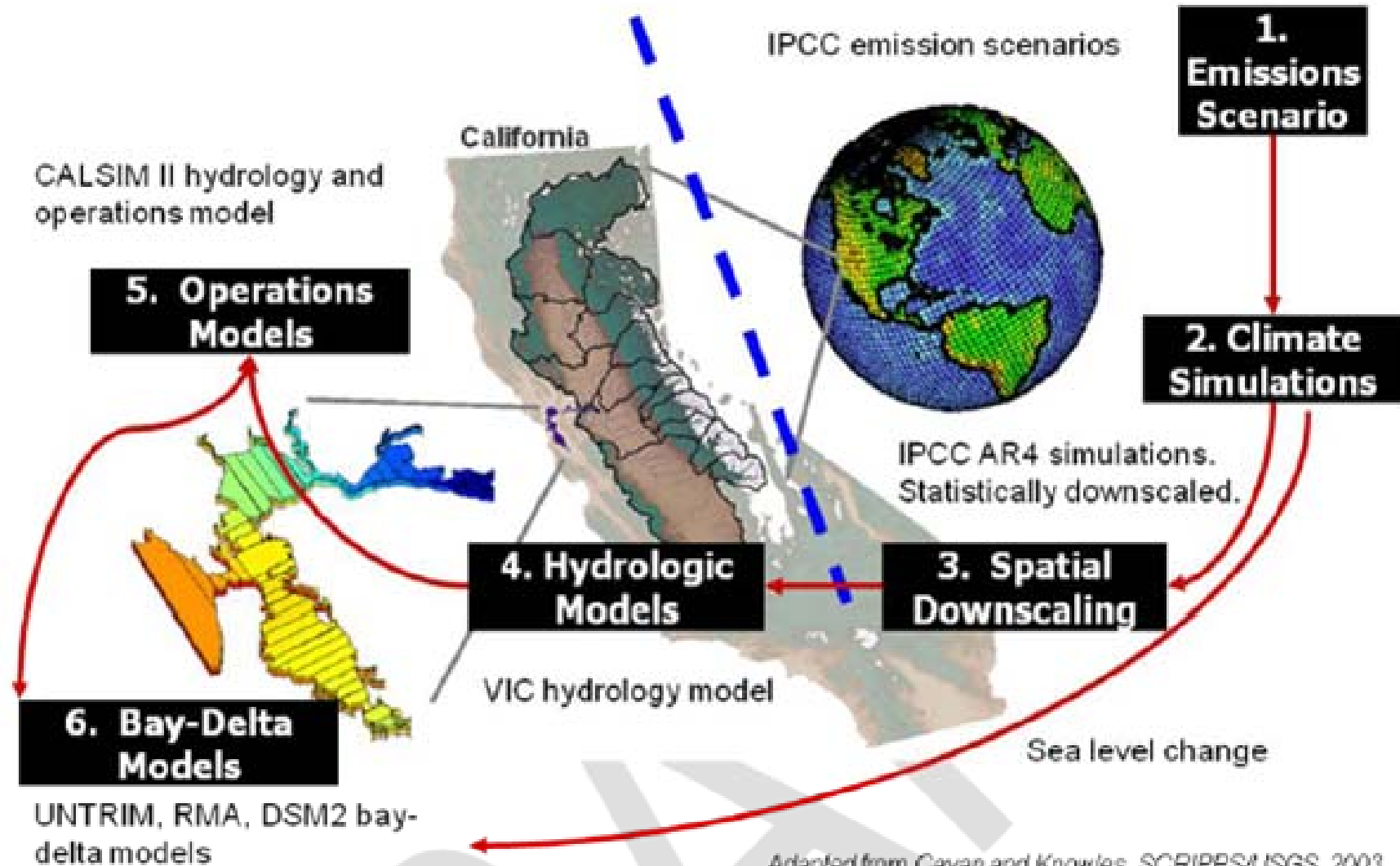
- Effects Analysis (BDCP)
 - Waterfowl
 - Giant garter snake
 - Swainson's hawk
- EIR/EIS
 - Land Use Changes
 - Agricultural Impacts
 - Air Quality, Traffic, etc.

How Land Use and Covered Species Are Linked

- Waterfowl
 - Hydrology
 - Food production
- Giant garter snake
 - Hydrology
 - Close association with rice ditches
- Swainson's hawk
 - Close association with alfalfa/irrigated pasture

Analytical Tools and Methods

- Over 19 hydrological and biological models
- Specific to Yolo Bypass
 - CALSIM
 - MIKE-21
 - Delta Passage Model (DPM) (under revision)
 - Chinook Fry Rearing Analysis
 - Habitat Suitability Indices (HSI) (splittail)
 - DRERIP (passage improvements and stranding)



Adapted from Cayan and Knowles, SCRIPPS/USGS, 2003

- Modeling does not represent historic conditions; rather, it uses historic patterns coupled with current/proposed regulatory criteria to offer relative comparisons

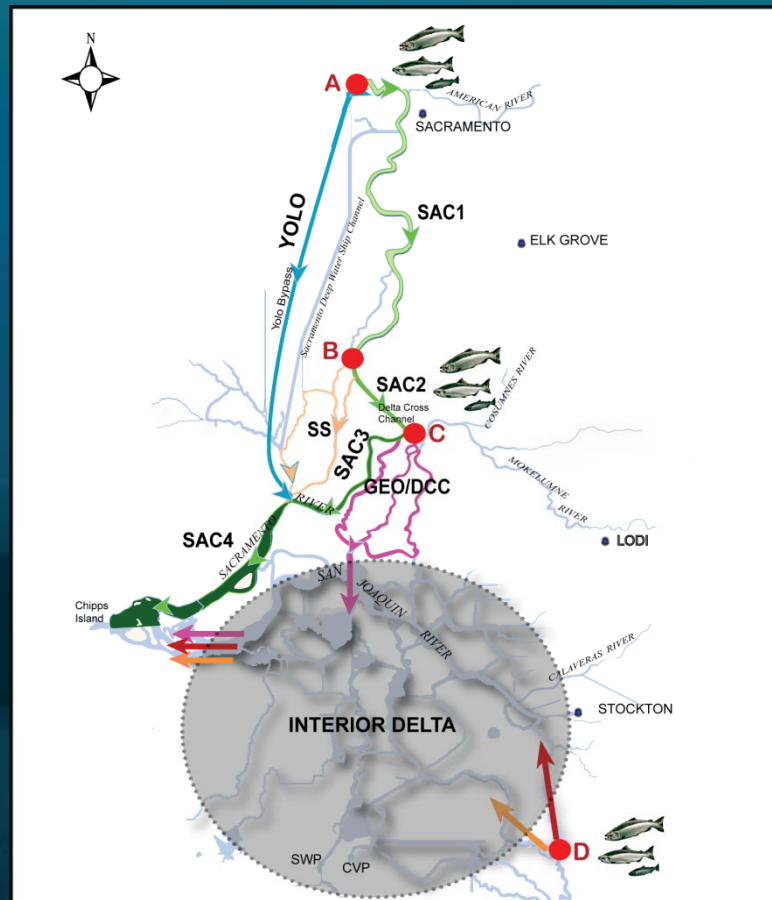
Qualitative Biological Analyses

- DRERIP (Conducted in 2009)
 - Magnitude and Certainty rankings (1-4) by groups of subject experts
 - Examples:
 - Improved adult anadromous fish passage at Fremont Weir (Magnitude and certainty = 3-4)
 - Stranding of adult/juvenile fish within Yolo Bypass (Magnitude = 1-2, certainty = 4)

Quantitative Biological Analyses

- Habitat suitability analyses for all species and life stages (in progress)
- E.g., Sacramento Splittail Habitat Suitability
 - Spawning/early rearing habitat
 - Cumulative area of inundation, Feb. 1-Jun. 30
 - Weighted by depth suitability
 - 30 continuous days of flow (gaps up to 7 days)

- E.g., Chinook Salmon Smolt Through-Delta Survival (Delta Passage Model)



Biological Analysis in Development

- E.g., Chinook Salmon Fry Rearing Spreadsheet Tool
 - Flow-related abundance/migration timing
 - Timing/duration of inundation
 - Relative growth in Bypass/River
 - Size at ocean entry/survival to adulthood

Effects Analysis Next Steps

- Completion of draft Effects Analysis
- Review of method development
- Revision if necessary

Next Steps for YBFEP

- Finalize Conservation Measure 2 language
- Develop a Project Charter for developing the Yolo Bypass Fishery Enhancement Plan called for in CM2
- Identify resources for the YBFE Plan
- Analyze scenarios identified by BYFEP planning team in 2011
- Resolve larger issues associated with implementing CM2 and the YBFE Plan