

Central Valley Salmon and Steelhead Recovery Plan Update

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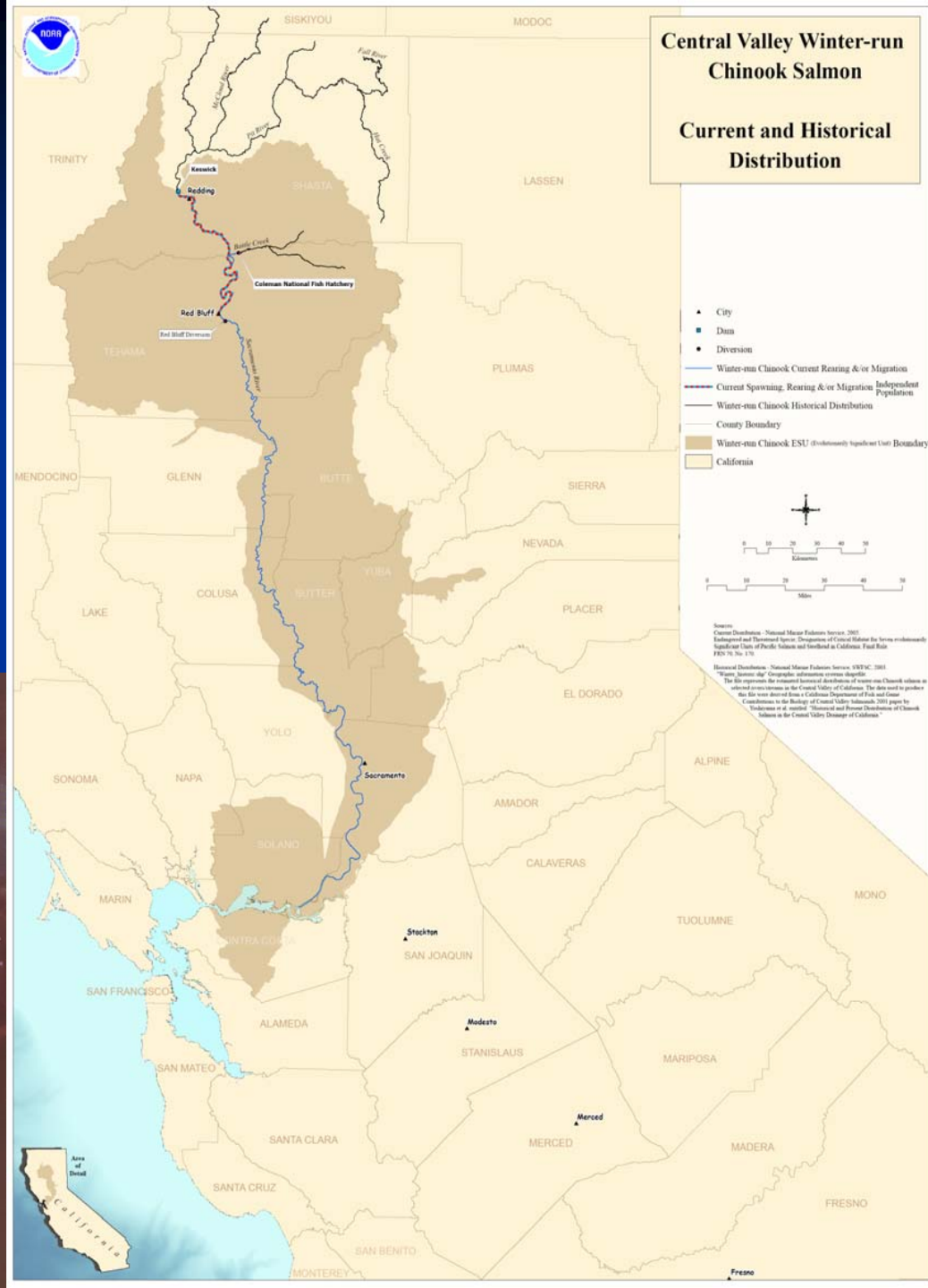
NMFS Priorities in Central Valley

- Using best science: “viable salmonid population”
- Recovery Plan: working in partnerships
- Long-term OCAP Consultation
- Bay Delta Conservation Plan
- FERC and Levee consultations
- Hatcheries
- San Joaquin River Restoration

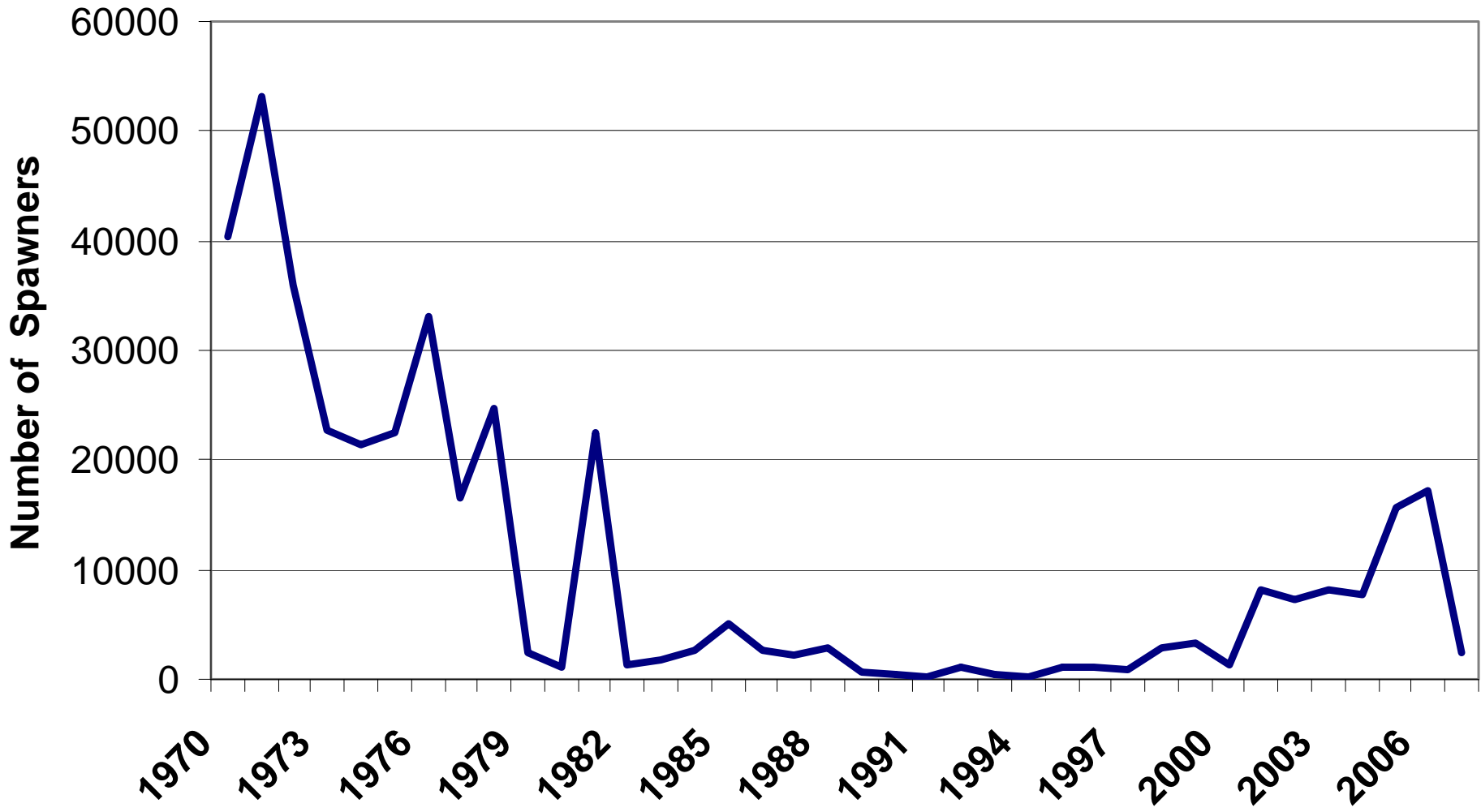
Recovery Plan Timeline

- Species include Winter- and Spring-run Chinook salmon and Central Valley steelhead
- Draft for co-manager review distributed in Mid May. 45 Day review period
- Independent Peer Review in October
- Public Review Draft expected to be released in November – 60 day review
- Final Recovery Plan by early to mid 2009

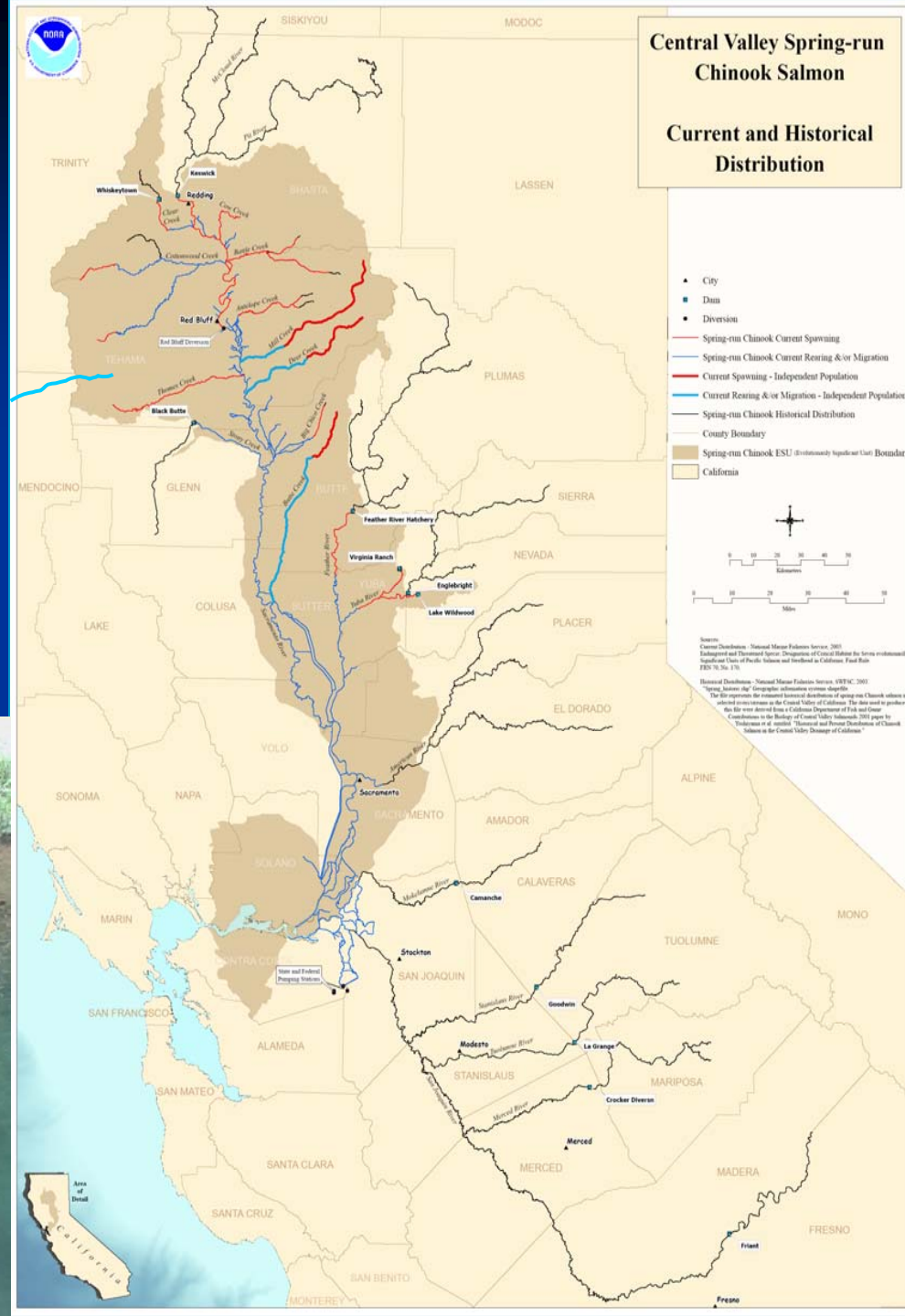
Sacramento River Winter-run Chinook Salmon Distribution



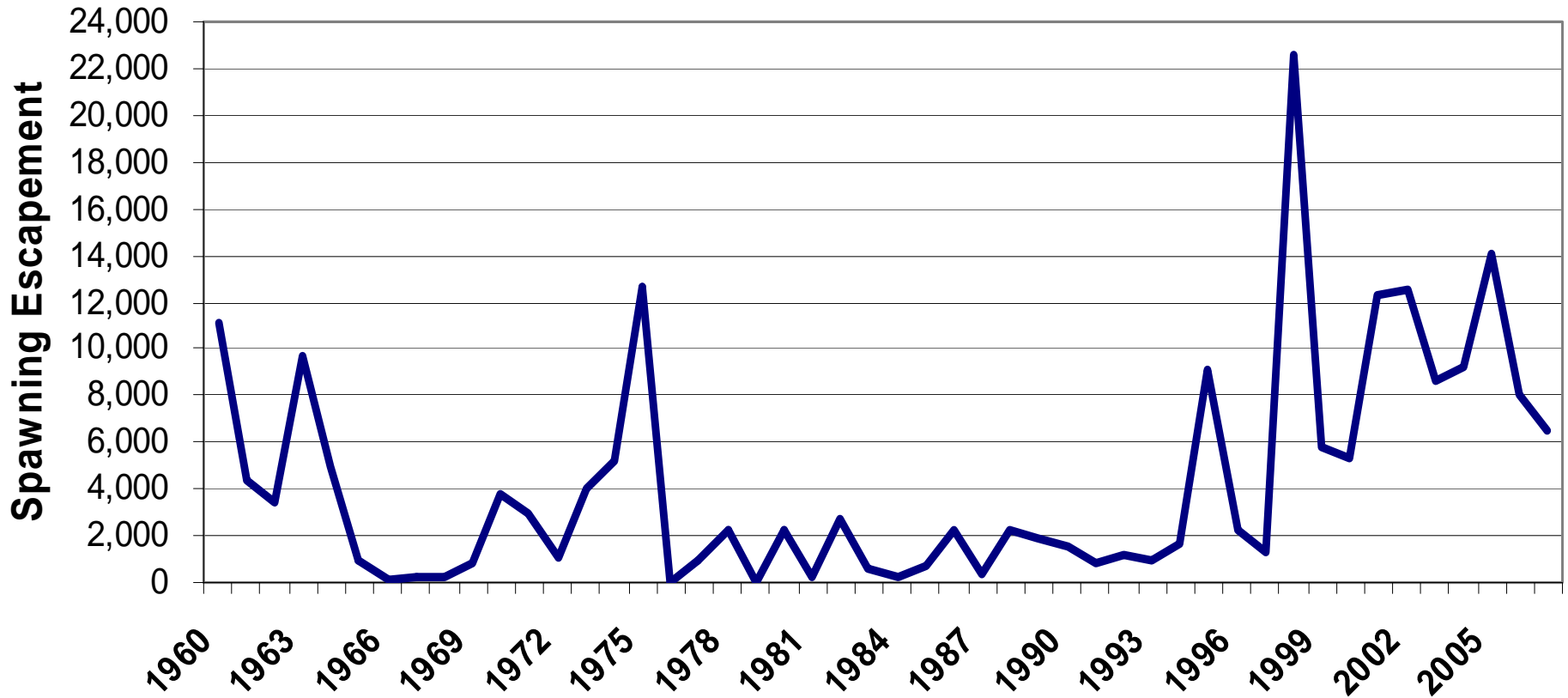
Winter-run Chinook Salmon



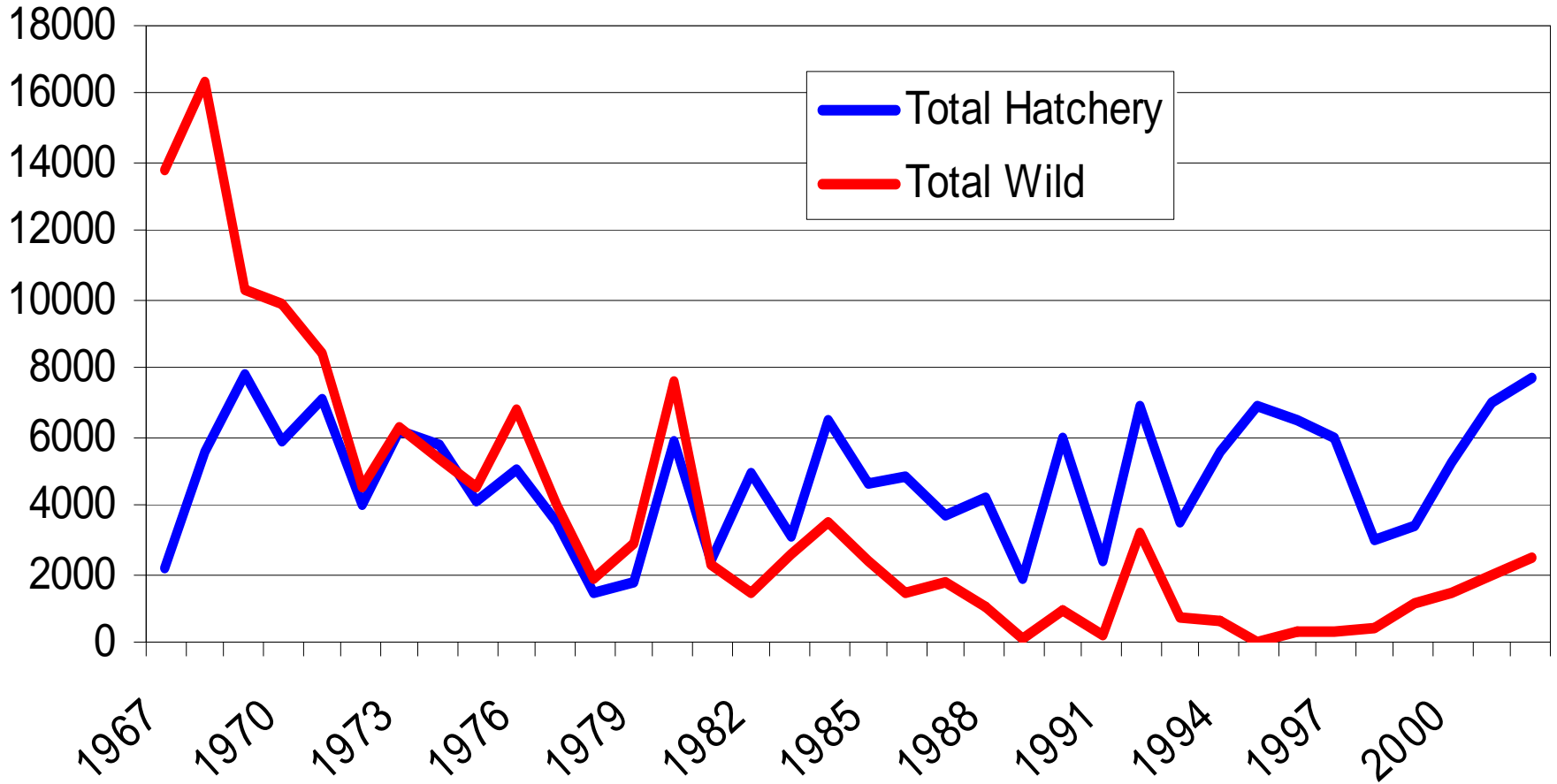
Spring-run Chinook Salmon Distribution



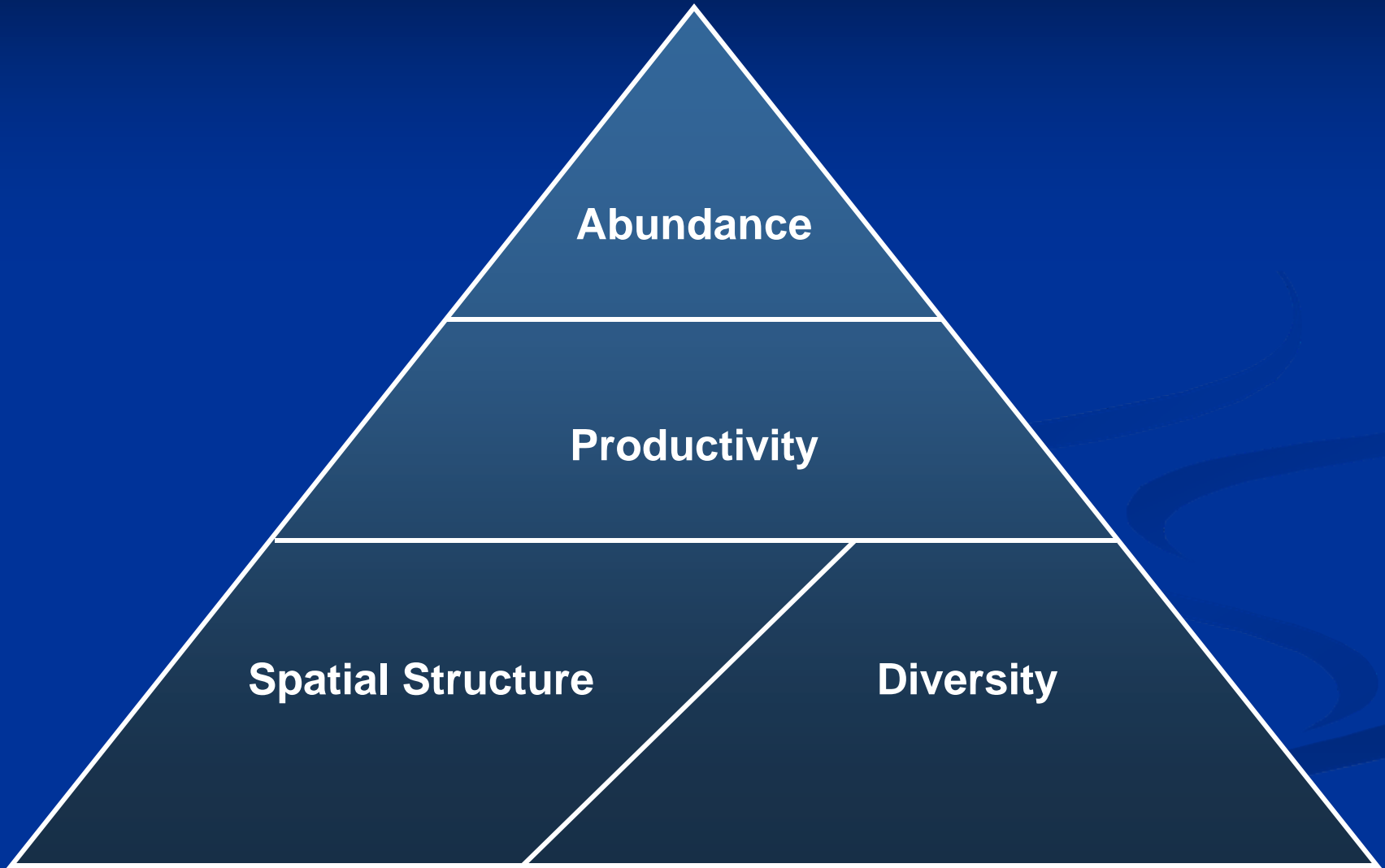
Central Valley Spring-run Chinook Salmon Mill, Deer, Butte Creek Populations



Central Valley Steelhead



“VSP” = Viable Salmonid Population



Recovery Plan

Definition of Recovery

- Recovery is defined as... “the process by which listed species and their ecosystems are restored and their future is safeguarded to the point that protections under the ESA are no longer needed.”*

*NMFS Interim Endangered and Threatened Species Recovery Planning Guidance, October 2004

Recovery Strategy

Foundational Principles

1. Recovery must address the entire natural (freshwater, estuarine, and ocean) and cultural ecosystem (human developments);
2. Sustained salmonid productivity requires a network of complex and interconnected habitats, which are created, altered, and maintained by natural physical process;
3. Life history diversity, genetic diversity, and metapopulation organization are ways that salmonids adapt to complex and connected habitats under changing environmental conditions (Williams 2006).

Recovery Plan Components

- Population Identification
- Assessment of Threats
- Conservation Efforts
- Recovery/Conservation Strategy
- Recovery Goals/Objectives: precursor to recovery criteria
- Population/ESU/DPS recovery criteria
- Site-specific Management Actions
- Objective Measurable Criteria
- Implementation Schedule/Costs

Recovery Plan

Threats Assessment

A “threat” or “stressor” is a factor, typically anthropogenic, that may have adverse effects on species – water quality, high temperatures, dams and passage, fishing, hatcheries and genetics, etc.

- Threats assessment forms scientific foundation
- Prioritization of threats = prioritization of recovery actions

Threats Assessment Development

Identify and Rank Stressors

Primary Stressors

- ◆ Passage Impediments/Barriers
- ◆ Angling/Harvest Impacts
- ◆ Water Temperature
- ◆ Water Quality
- ◆ Flow Conditions
- ◆ Loss of Riparian Habitat and Instream Cover
- ◆ Loss of Natural River Morphology
- ◆ Loss of Floodplain Habitat
- ◆ Loss of Tidal Marsh Habitat
- ◆ Spawning Habitat Availability
- ◆ Invasive Species/Food Web Changes
- ◆ Entrainment
- ◆ Predation
- ◆ Hatchery Effects
- ◆ Short-term Inwater Construction
- ◆ Ocean Conditions

- Individual primary stressors affecting each life stage were ranked

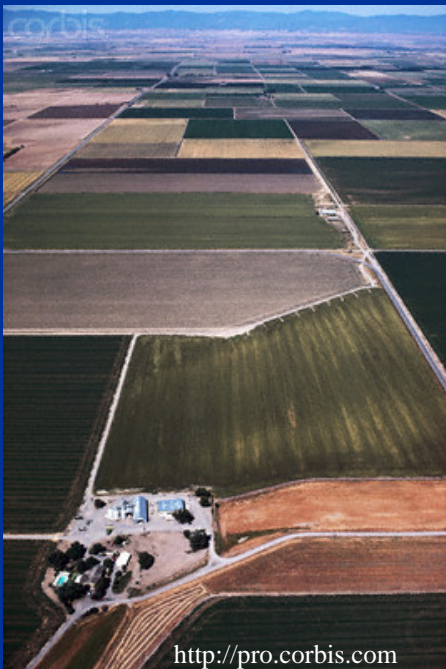
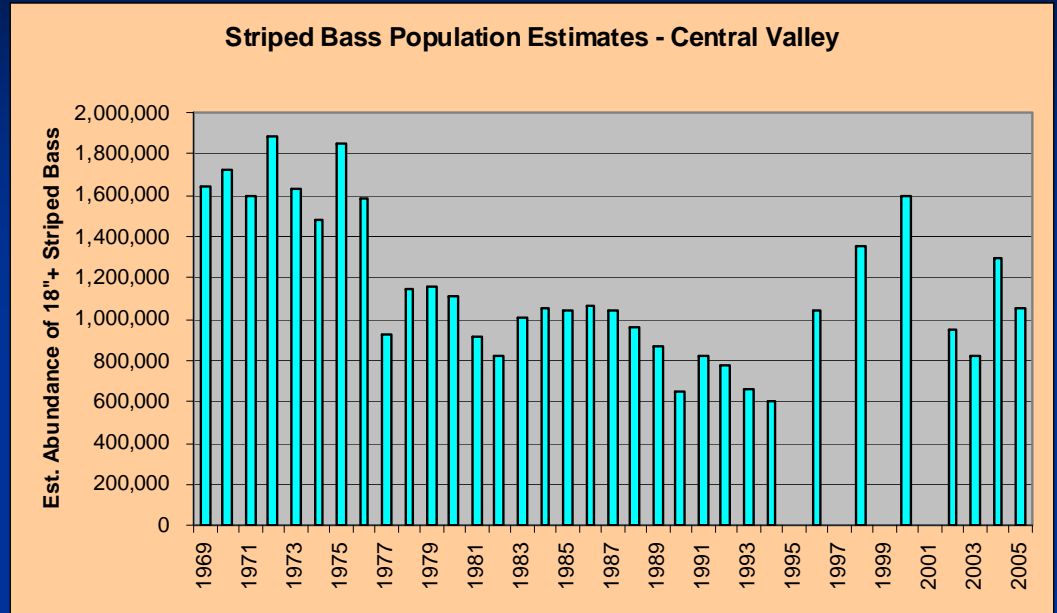
Criteria for Ranking Stressors

Scope (geographic)
Severity
Frequency (temporal)
Persistence
Likelihood

- Stressors include only those that act on specific life stages and can potentially be alleviated through specific recovery actions.

Threats Assessment Results

Threats Common to all Diversity Groups



Threats Assessment Results

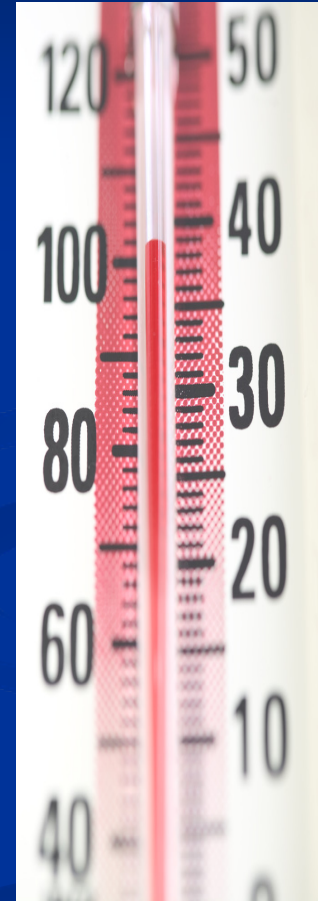
Basalt and Porous Lava Diversity Group



Northern Sierra Nevada Diversity Group



Northwestern California Diversity Group



Recovery Actions

Central Valley

- Second population of winter run in Battle Creek
- Conduct a Central Valley-wide assessment of keystone dams and passage opportunities
- Promote Federal, State and local initiatives and programs to improve water conservation, water re-use, and conjunctive use
- Decrease ocean harvest of listed stocks
- Implement a program to re-establish a more naturally-functioning Delta
- Implement programs to control non-native predators
- Develop and support public education and outreach programs

Recovery Criteria

ESU-level Criteria

1. Diversity Group population demographics as informed by modeling results, indicating that the ESU is viable
2. Two or more viable populations within each Diversity Group

Population-level Criteria

1. The effective population size must be > 500 or the population size must be $> 2,500$
2. The population growth rate must show that a decline is not apparent or probable
3. There must be no apparent or minimal risk of a catastrophic disturbance occurring
4. Hatchery influence must be low, as determined by levels corresponding to different amounts, durations and sources of hatchery strays (Lindley *et al.* 2007)

Recovery Strategy

Implementation

1. Stakeholder Cooperation
2. Local Initiatives
3. Public Support
4. Adaptive Management and Monitoring

Implementation Teams

1. Keep momentum going
2. Track and guide progress