



NOAA
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West Coast
Region

CVP/SWP Long-term Operations NMFS Draft Biological Opinion

June 7, 2019

Status of Species and Critical Habitat

Sacramento River winter-run Chinook salmon

- Endangered

Central Valley spring-run Chinook salmon

- Threatened

California Central Valley steelhead

- Threatened

Southern DPS Green Sturgeon

- Threatened

Critical Habitat – all 4 anadromous fish species

Southern Resident Killer Whale

- Endangered – Danger of extinction

Chapters Included in Review Package

- Analytical Approach
- Action Area
- Range-wide status of the species and Critical Habitat
- Environmental Baseline
- Effects of the Action on Individuals and Critical Habitat
 - Trinity Division (Clear Creek)
 - Shasta Division
 - American River Division
 - Delta Division
 - East-side Division (Stanislaus and Lower San Joaquin)
 - Climate Change (bulk of it is in the Analytical Approach)
 - Winter-run Life-cycle Model Analysis
- Cumulative Effects
- Literature Cited
- Appendices



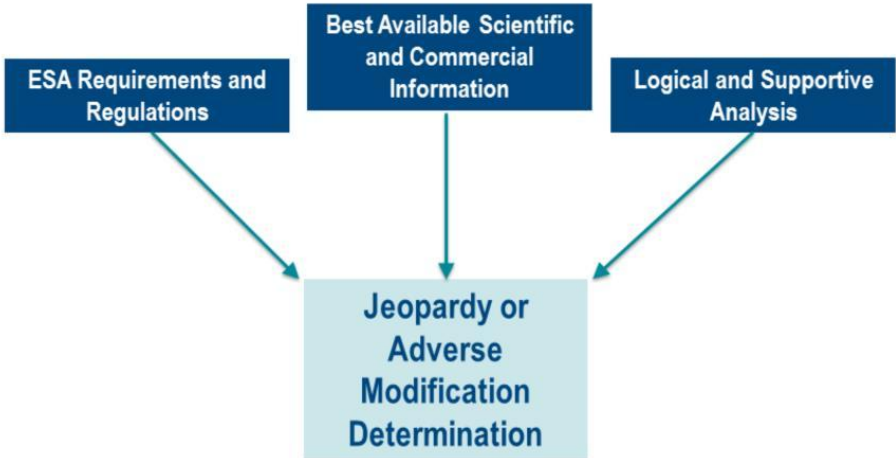
Action Components – As proposed by Reclamation

Core Operations	Scheduling	Collaborative Planning
The action is part of the Core Water Operations of the CVP and SWP	Agencies and water users provide recommendations to Reclamation on scheduling and shaping specific flow actions	Agencies and water users work collaboratively to define, plan, and implement an action.
e.g., OMR Management, Shasta Cold Water Pool Management	e.g., American River Pulse Flows	e.g., Stanislaus River Spawning and Rearing Habitat Restoration

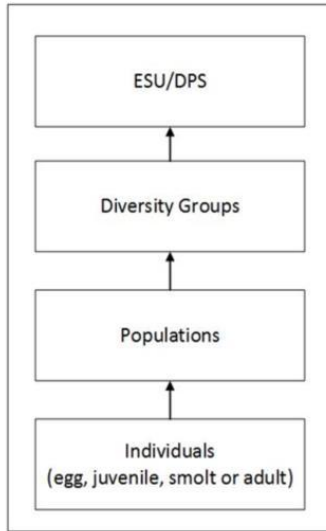
Analytical Approach

- To “jeopardize the continued existence of a listed species” is “to engage in an action that would be expected, directly or indirectly, to **reduce appreciably the likelihood of both the survival and recovery** of a listed species in the wild by reducing the **reproduction, numbers, or distribution** of that species” (50 CFR 402.02)
- Destruction or adverse modification “means a direct or indirect alteration that **appreciably diminishes the value of critical habitat for the conservation** of a listed species. (81 FR 7214; February 11, 2016)

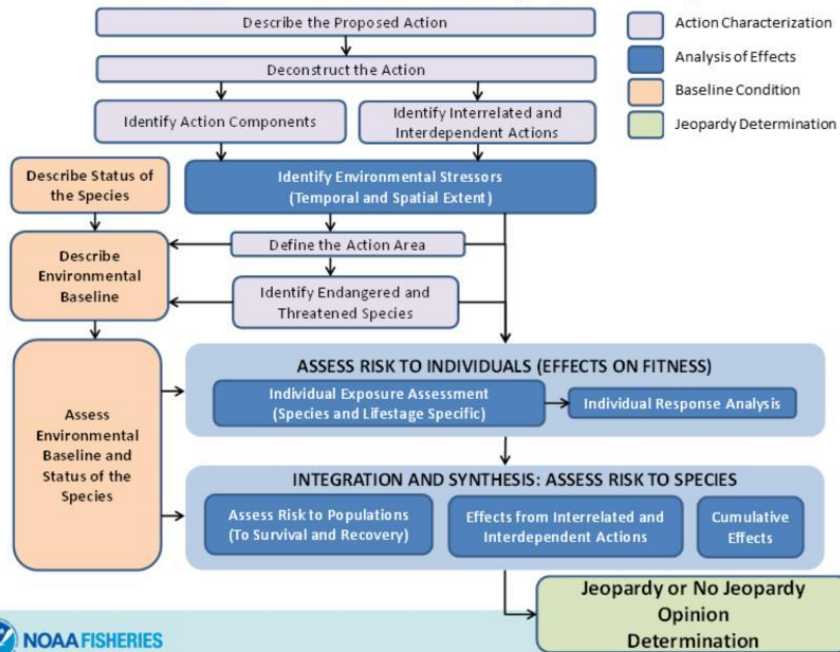
Objectives of Analytical Approach



Application of Approach to Species - Individuals



General Approach Model (Species)



Action Area

- “Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

Range-wide Status of the Species

- Describes the species' current abundance and distribution
- Examines the condition of critical habitat and current function of Primary Biological Features.
- Describes current extinction risk that the listed species face, based on recovery plans, status reviews, and listing decisions
- Informs the species' likelihood of both survival and recovery

Environmental Baseline

- The “environmental baseline” includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

Cumulative Effects

Effects of the Action

- Temperatures
- Flows

Winter-run Life Cycle Model

Performance Measures

- Delta
- Shasta

Primary Analytical Tools and Models*

- Reclamation's BA
- CalSimII – Operations model
- DSM2-HYDRO – Flow model used to support entrainment risk
- HEC-5Q - Water quality/temperature
- SALMOD – Fish production model
- DPM – Particle tracking, supports evaluation of flow effects and informs take determinations
- IOS – Life-cycle model to support population scale effects
- Central Valley Chinook Life Cycle Model - Life-cycle model to support population scale effects
- Temperature-Dependent Egg Mortality Model
- Anderson Egg Mortality Model
- Reclamation Egg Mortality Model/SacSalMort
- Floodplain Inundation
- WUA Analysis – Habitat/Flow relationships

*Subject to Finalization