

# NMFS Biological Opinion Schedule Update and Draft Analytical Approach

West Coast  
Region

Reinitiation of Consultation on the Coordinated  
Long-Term Operations of the CVP/SWP

April 25, 2019



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## Biological Opinion Update and Schedule

- Currently drafting the Effects Analysis
  - May 6-10: NMFS internal QA/QC review
  - May 23-31: Draft Effects Analysis to Reclamation and Applicant for WIIN Act review
  - May 23-31: Peer Review
  - Final Biological Opinion issued June 17
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# **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

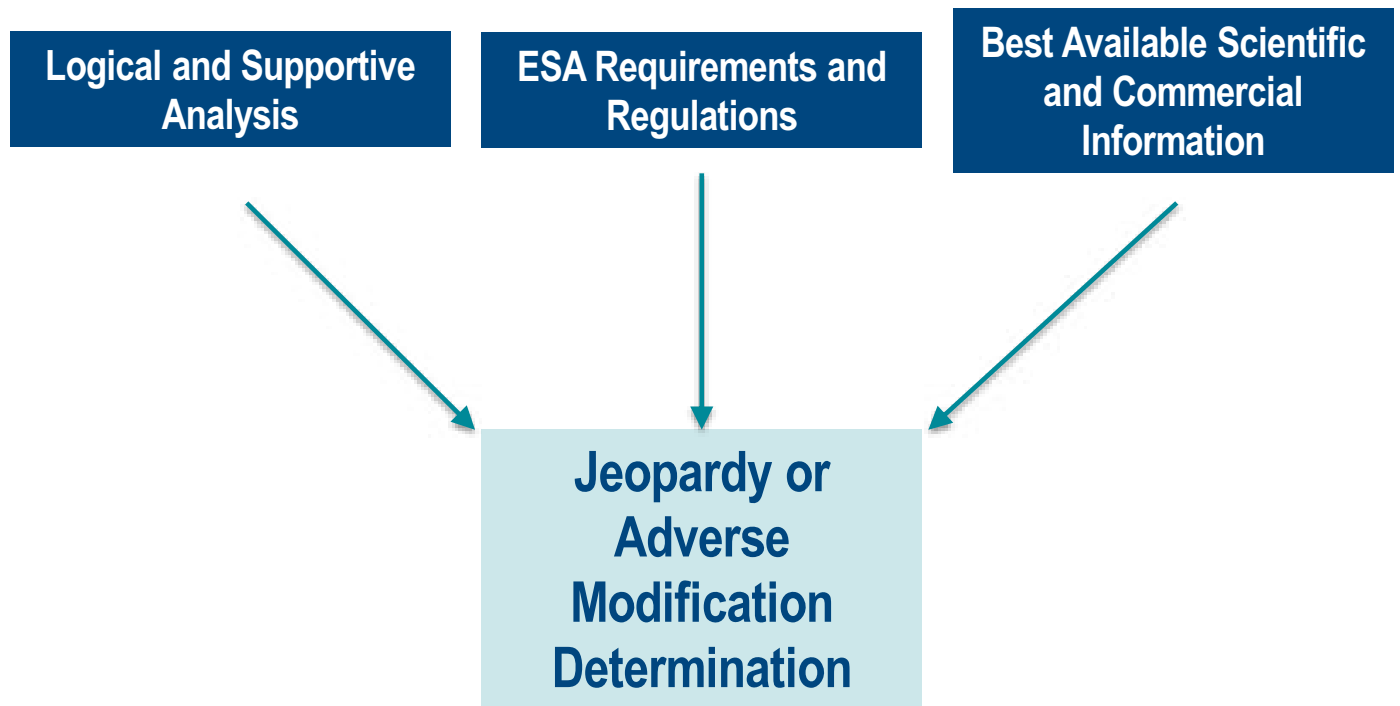
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## Objectives of Analytical Approach

- 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)

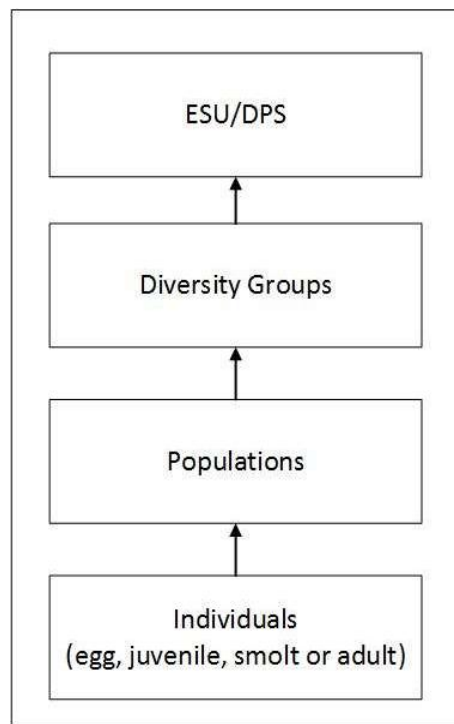
**Jeopardy or  
Adverse  
Modification  
Determination**

# Objectives of Analytical Approach

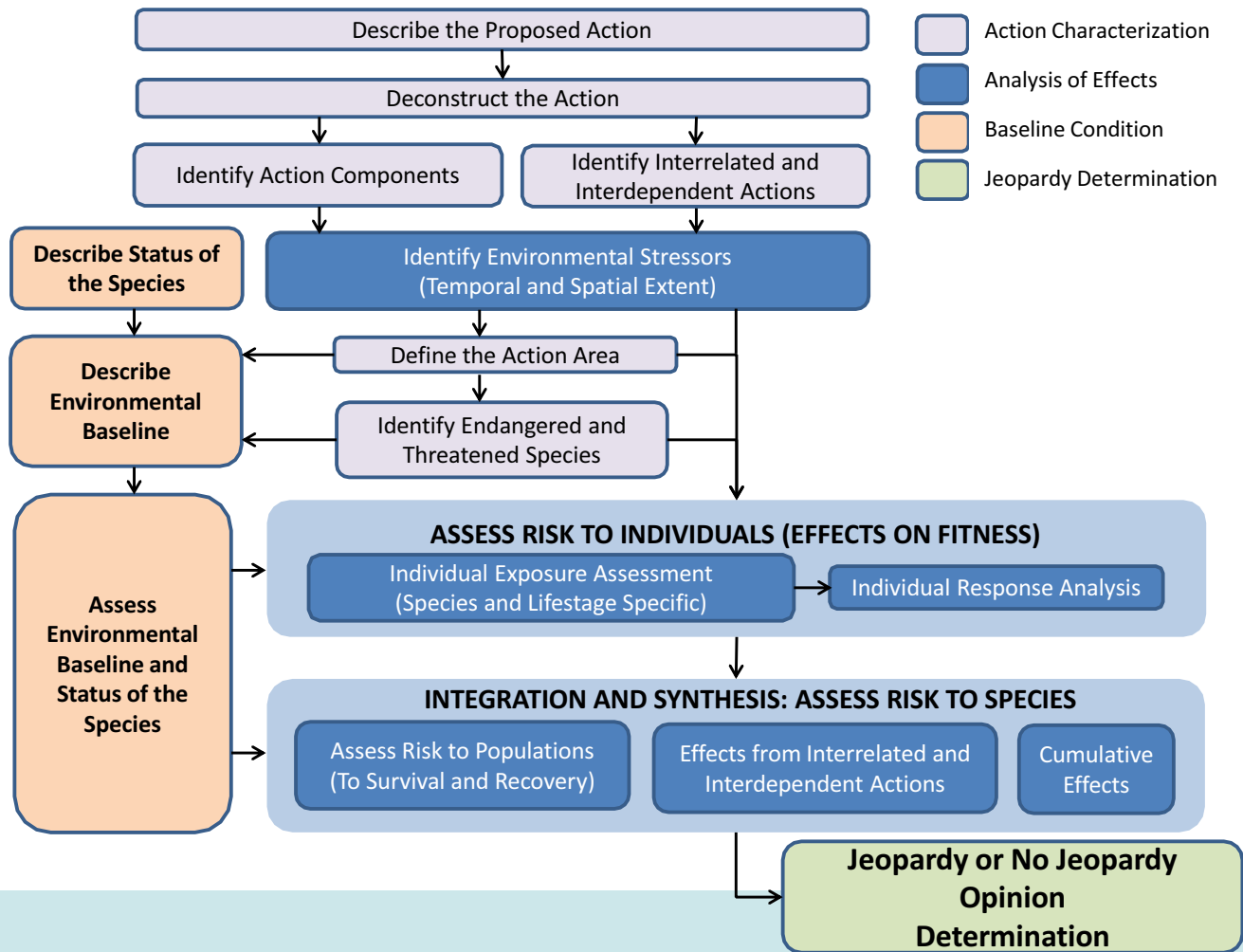


## Application of Approach to Species - Individuals

- Species risk depends on response of individuals



# General Approach Model (Species)



# 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