



**NOAA
FISHERIES**

**West Coast
Region**

NMFS Biological Opinion Schedule Update and Draft Analytical Approach

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

April 25, 2019

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



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



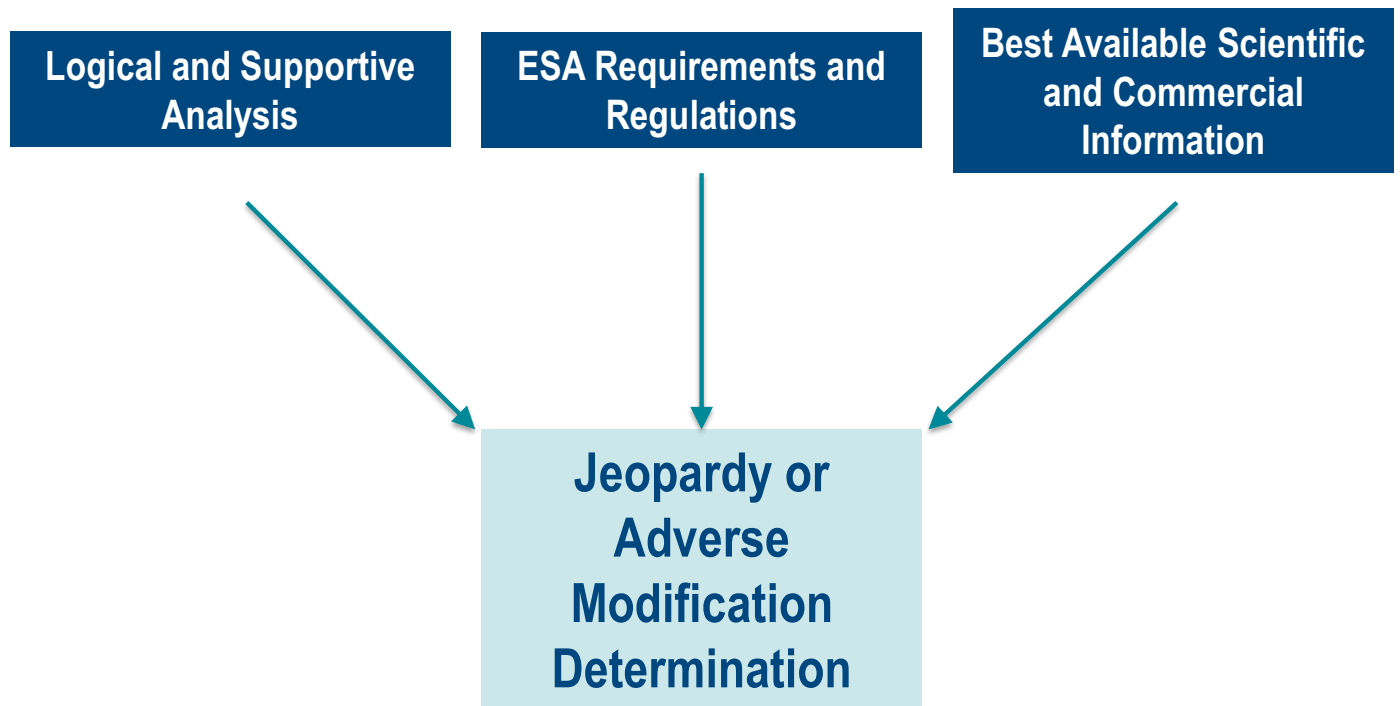
Objectives of Analytical Approach

- 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**

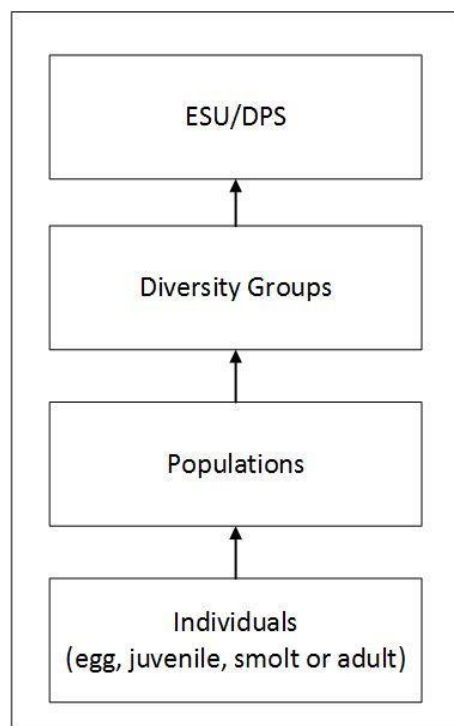


Objectives of Analytical Approach

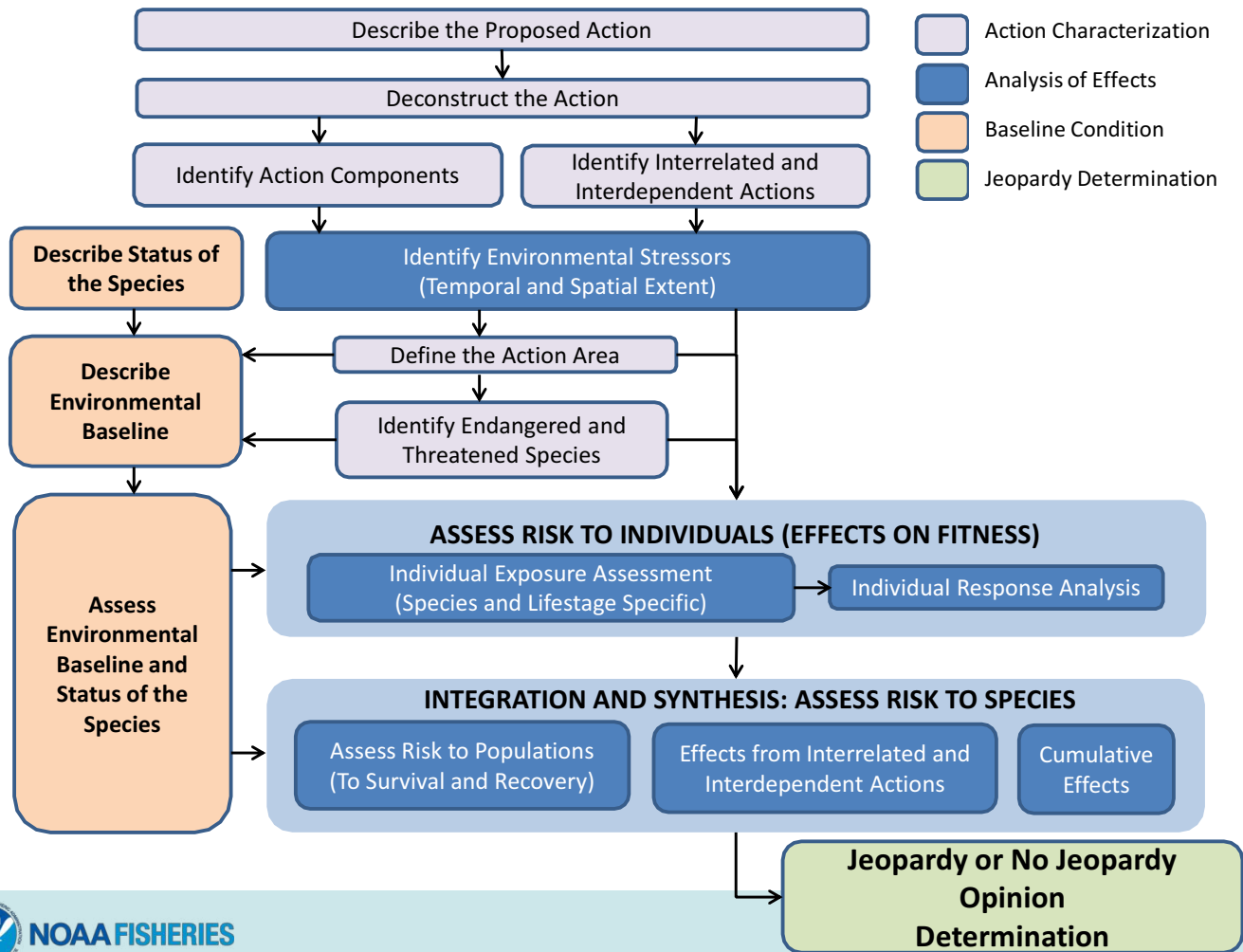


Application of Approach to Species - Individuals

- 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

