Science, Service, Stewardship

Overview to the Killer Whale Prey Analysis: NMFS Biological Opinions

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Overview to the Killer Whale Prey Analysis

- Context for the agency analysis of fishery harvest
- Prey pathway of effect
- Analytical approach
- Available data to inform the analysis
- Uncertainties and assumptions

Context for the Agency Analysis of Fishery Harvest

Section 7(a)(2) of the ESA requires federal agencies to insure that their actions are not likely to jeopardize the continued existence of listed species or result in the adverse modification or destruction of critical habitat.

Defining Jeopardy: "Jeopardize the continued existence of" means to engage in an action that would reasonably 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 402.2).

NMFS Action: Authorize salmon fisheries harvest.

Context Cont.

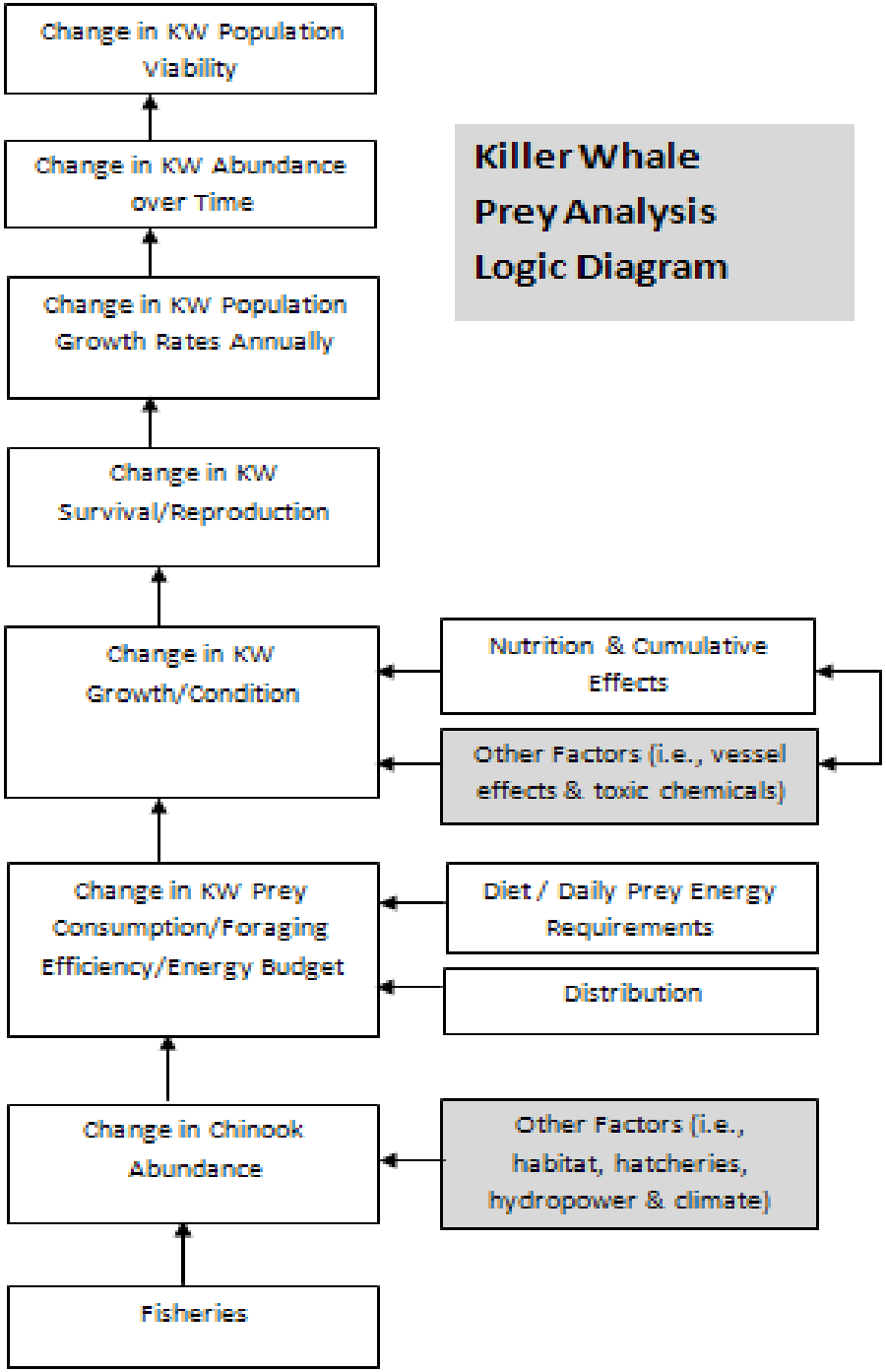
Consultation History: NMFS has previously consulted on the effects of fisheries on Southern Resident killer whales, including:

- the 2008 U.S. v. Oregon Harvest Agreement,
- the Pacific Salmon Treaty,
- the Pacific Coast Salmon Plan,
- the U.S. Fraser Panel Fisheries
- and the Puget Sound Chinook Harvest Plan.

- NMFS concluded that these fishing regimes would not jeopardize the killer whales.
- New scientific information continues to emerge that will help inform future consultations.

Prey Pathway of Effect

- Salmon fisheries affect Southern Residents indirectly by reducing their available prey.
- Diagram represents the chain of logic used to assess the effects.



Analytical Approach

NMFS analyzes effects in two steps:

(1) Estimate the reduction in prey available to the whales caused by salmon fisheries

(2) Consider information to help put the reductions in context

- Consider all U.S. and Canadian salmon fisheries.
- Predominance of Chinook and particularly large Chinook in the Southern Residents diet.
- Estimate the ratio of Chinook prey available to the whales' Chinook needs.
- Observational reports about poor body condition of individual whales
- Studies of correlations between Chinook abundance and measures of health of the whale population.

Available Data to Inform the Analysis

NMFS analysis relies on the best scientific information available, which continues to advance as new science becomes available.

NMFS evaluates available data on:

- the whales' predominant prey resource, Chinook salmon,
- their Chinook needs,
- the Chinook available,
- the reduction in Chinook caused by fisheries, and
- the relationship between Chinook abundance and killer whale population dynamics.

Uncertainties and Assumptions

NMFS highlights confidence in available data, identifies uncertainty in light of data gaps, and where appropriate makes conservative assumptions.

Data Confidence: Varying levels of confidence in the sources of information.

Uncertainty: Data gaps create uncertainty in the analysis. For example, limited knowledge of the whale and Chinook distribution, or of whale foraging efficiency.

Assumptions:

- The year-round diet of Southern Residents is composed mainly of Chinook.
- The whales do not eat small Chinook.
- Focus on the high end of metabolic requirements modeled for the killer whale population.
- Recognize that estimates of available food energy from Chinook are underestimates.