

*Science, Service, Stewardship*



# Threats Facing ESA-listed Salmon and Steelhead in the Columbia Basin

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**NOAA  
FISHERIES  
SERVICE**

Columbia Basin Partnership Workshop

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Ambridge Event Center, Portland (OR)

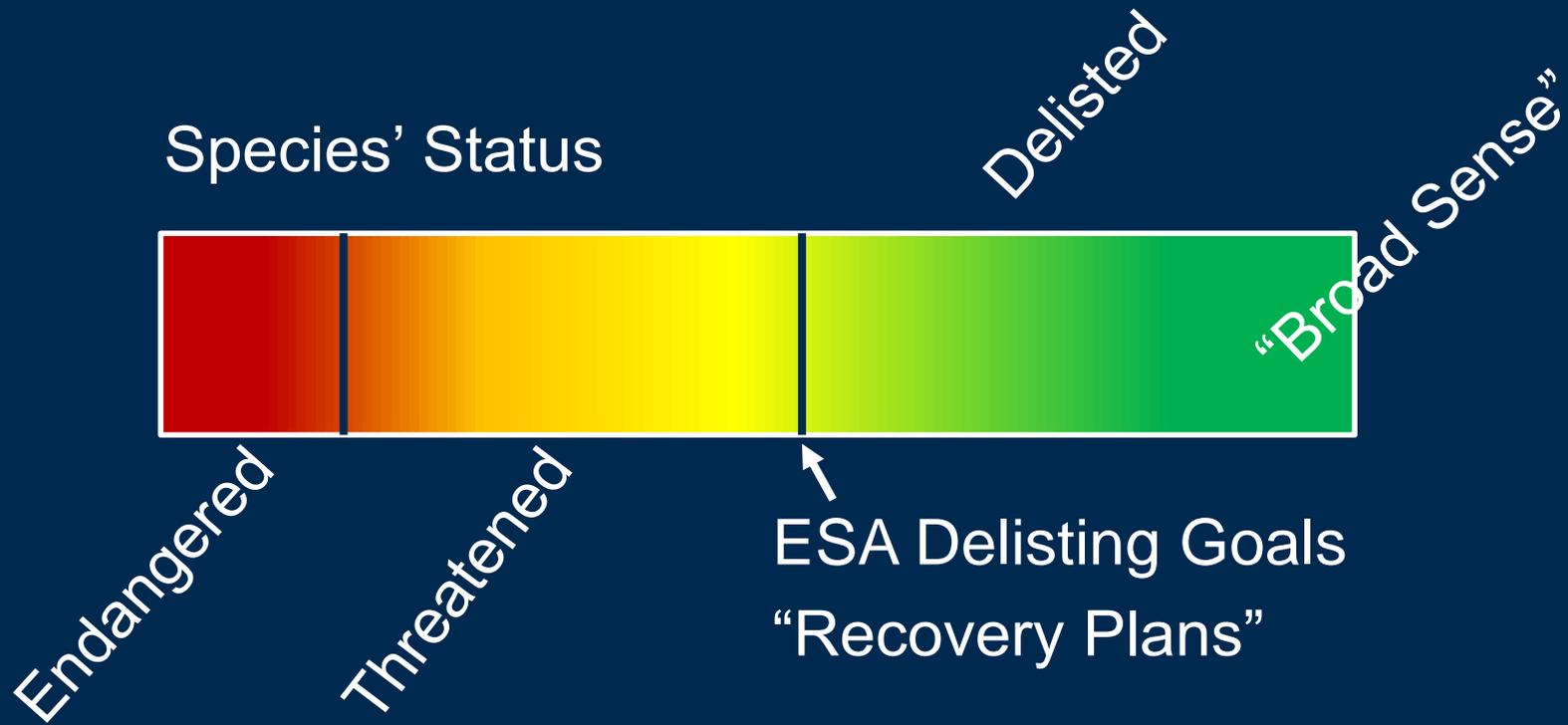


## Overview

- Listing decision framework
- Summary of ESA “Listing Factors”
- Status of ESA Listing Factors for Columbia Basin salmon and steelhead



# Endangered, Threatened, Delisting, “Broad Sense” Goals



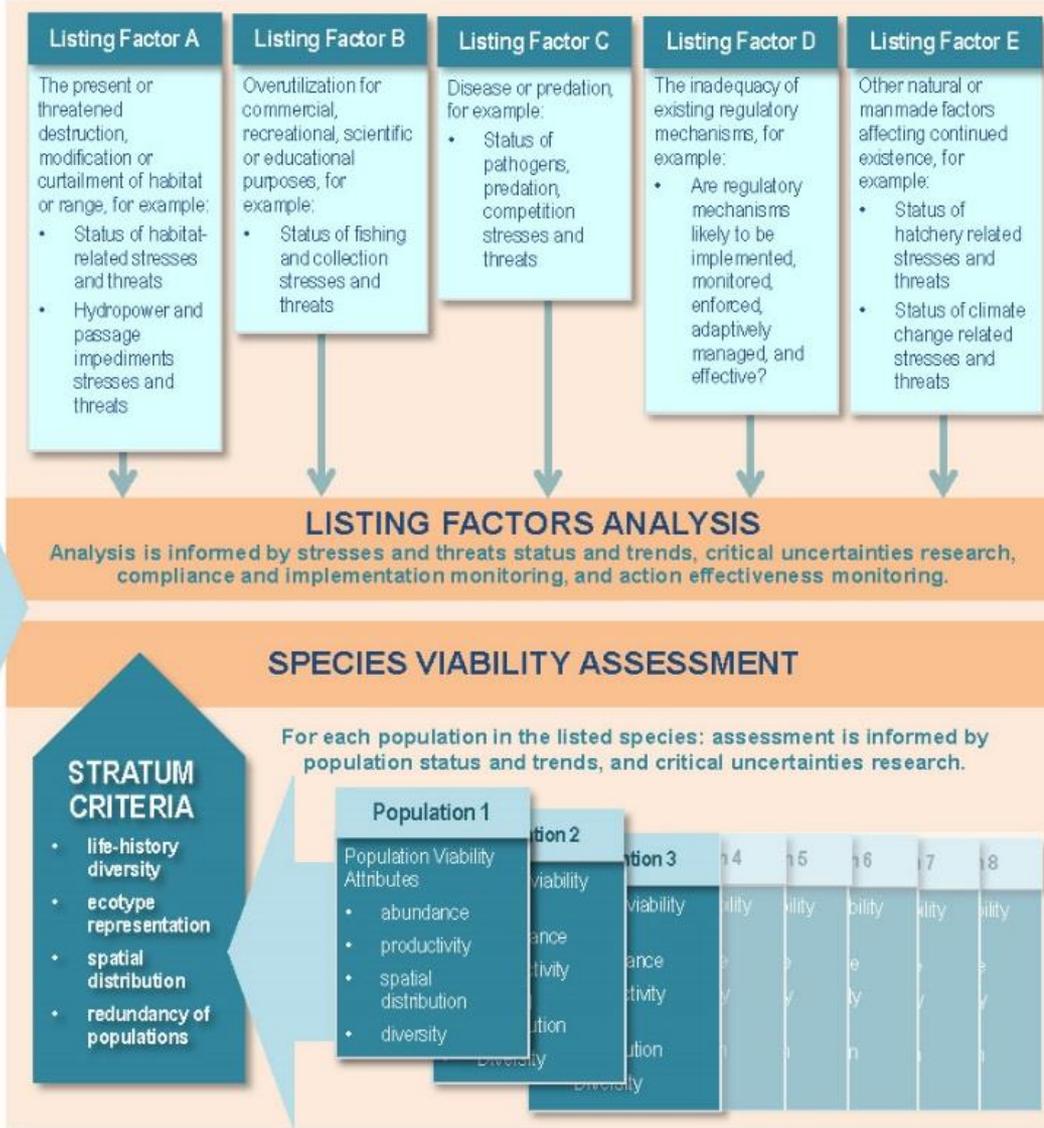


## Relevant Endangered Species Act Provisions

- Sec. 4(a)(1) – “The Secretary shall ... determine whether any species is an endangered species or a threatened species because of any of the following factors:
  - (A) the present or threatened destruction, modification, or curtailment of its **habitat** or range;
  - (B) **overutilization** for commercial, recreational, scientific or educational purposes;
  - (C) **disease or predation**;
  - (D) the inadequacy of existing **regulatory mechanisms**;
  - (E) **other natural or manmade factors** affecting its continued existence

# NOAA FISHERIES' ESA LISTING DECISION FRAMEWORK

To determine if a salmon or steelhead species is no longer threatened or endangered, NMFS examines a variety of factors.



**RECOVERY ACTIONS**

**RESEARCH, MONITORING & EVALUATION**

- Population status & trends monitoring
- Stresses & threats monitoring
- Critical uncertainties research
- Compliance & implementation monitoring
- Action effectiveness monitoring

**ADAPTIVE MANAGEMENT**  
Research & monitoring results, effectiveness of past recovery actions, and the status of listing factors inform refinements to, prioritization of, future recovery actions, research & monitoring.

**LISTING DECISION**

**LISTING FACTORS ANALYSIS**  
The extent to which site-specific management actions and protective efforts have been implemented and effective in addressing identified environmental stresses and threats.

**SPECIES VIABILITY ASSESSMENT**  
An analysis of viability factors for each population/stratum within the listed species.

# (A) Habitat

## Listing Factor A

The present or threatened destruction, modification or curtailment of habitat or range, for example:

- Status of habitat-related stresses and threats
- Hydropower and passage impediments stresses and threats



Riparian Habitat



Passage Barriers



Water quantity & quality



Side-channel, estuarine, nearshore, floodplain habitat



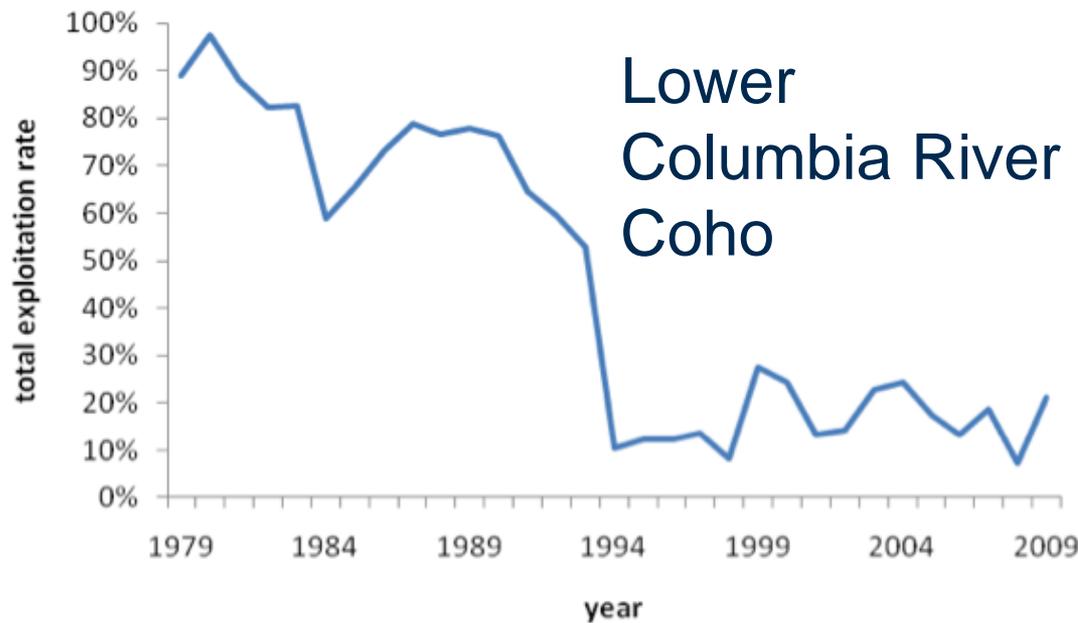
Channel structure, complexity, substrate

## (B) Overutilization

### Listing Factor B

Overutilization for commercial, recreational, scientific or educational purposes, for example:

- Status of fishing and collection stresses and threats



# (C) Disease & Predation

## Listing Factor C

Disease or predation, for example:

- Status of pathogens, predation, competition stresses and threats



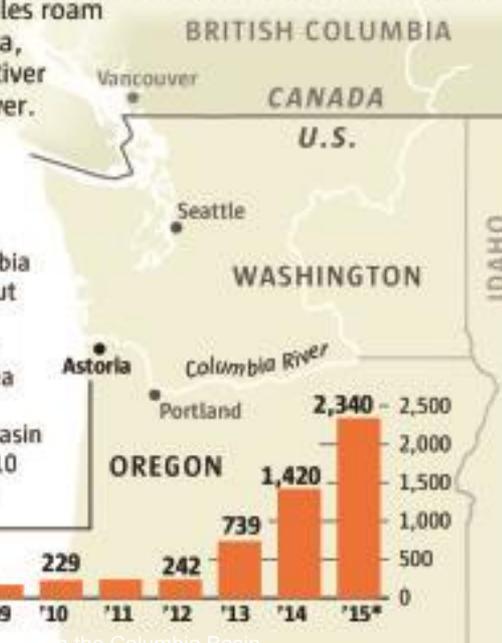
## California sea lions

The population of California sea lions has rebounded from fewer than 20,000 in the 1950s to more than 300,000. Most female California sea lions give birth and breed in islands off Los Angeles. But males roam as far north as Alaska, with the Columbia River an important stopover.

### ASTORIA

The mouth of the Columbia River is a favored haul-out spot for male sea lions drawn by strong runs of smelt. March's recent sea lion count of 2,340 in Astoria's East Mooring Basin is a record – more than 10 times the peak in 2010.

### SEA LION COUNT



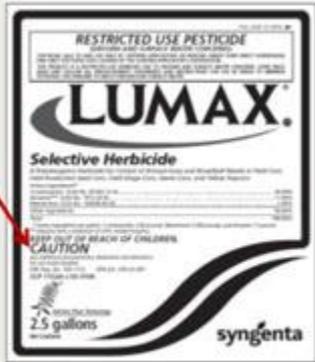
# (D) Inadequacy of Regulatory Mechanisms

## Listing Factor D

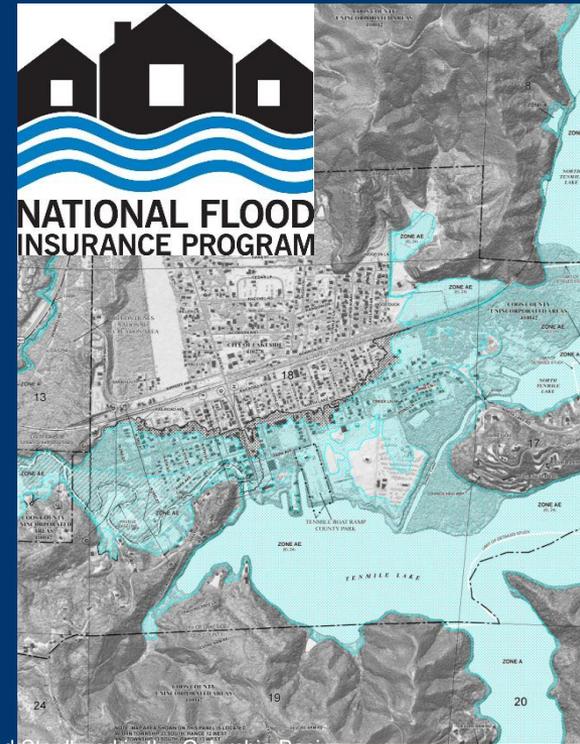
The inadequacy of existing regulatory mechanisms, for example:

- Are regulatory mechanisms likely to be implemented, monitored, enforced, adaptively managed, and effective?

Are the necessary regulations in place? Are they being implemented? Are they being enforced? Are they being monitored? Are they effective?



**Federal Insecticide, Fungicide, and Rodenticide Act**  
1972, 1988



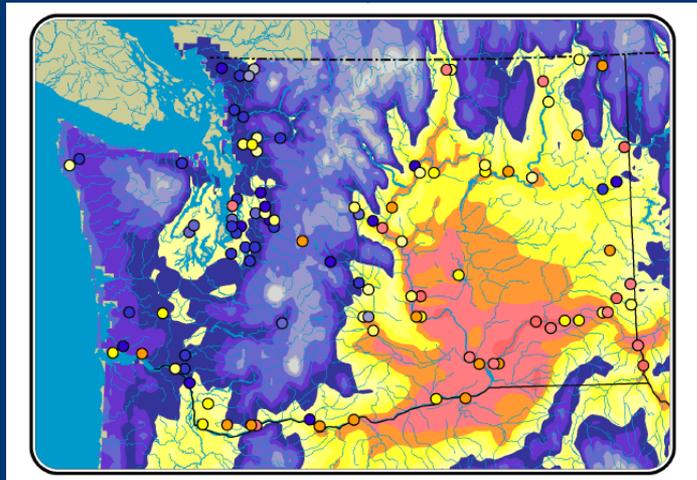
# (E) Other Natural & Manmade Factors

## Listing Factor E

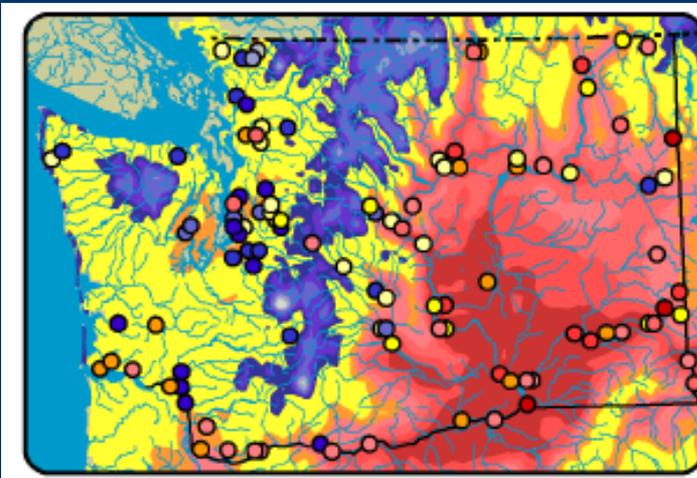
Other natural or manmade factors affecting continued existence, for example:

- Status of hatchery related stresses and threats
- Status of climate change related stresses and threats

## Climate Change



**1970-1999**



**2040s**

**+3.2F**

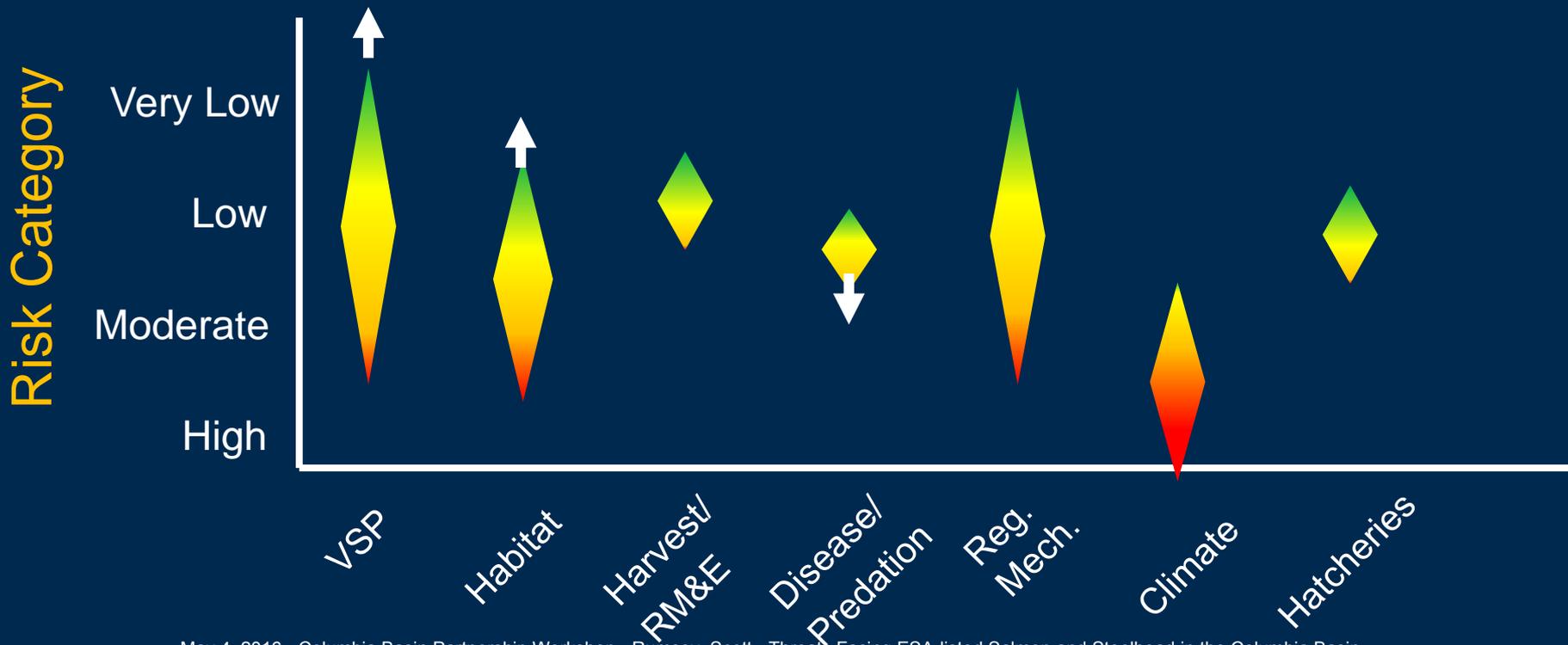
## Hatcheries





# Example: Middle Columbia River Steelhead

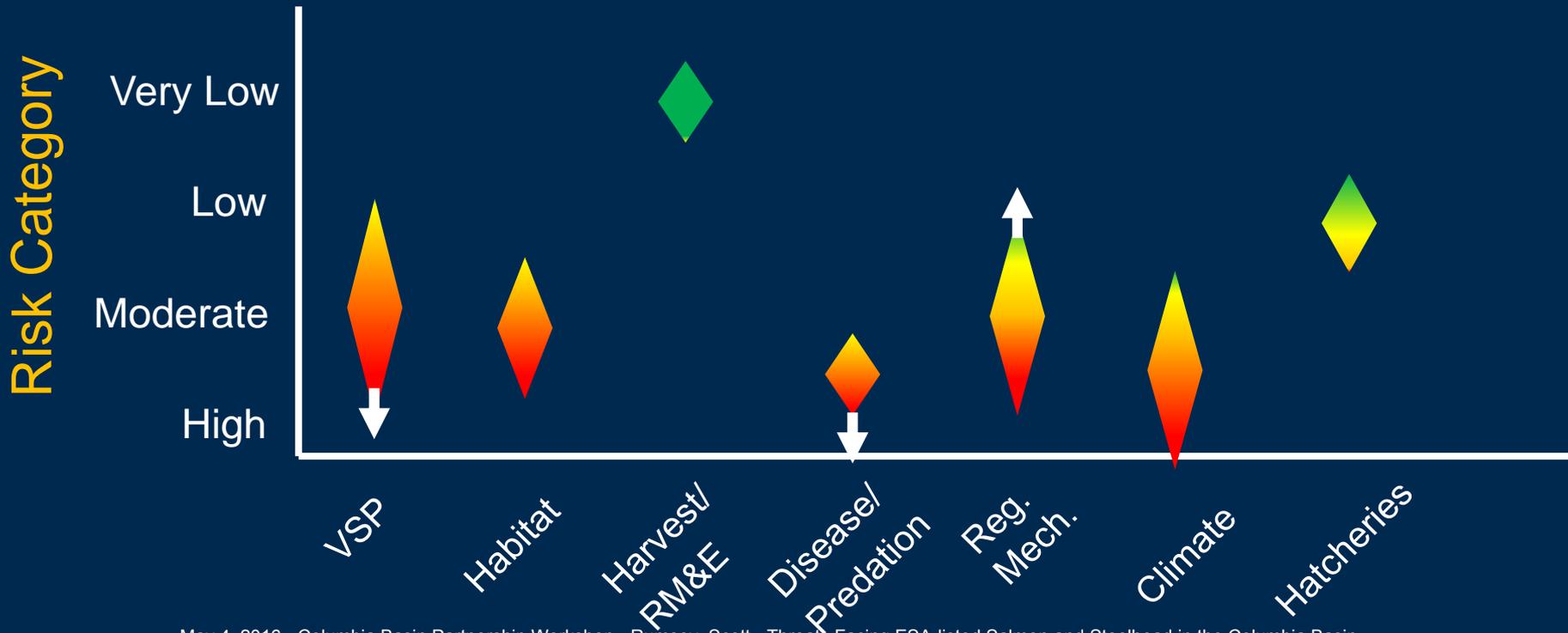
## Qualitative Depiction of ESA Listing Factors





# Example: Upper Willamette Steelhead

## Qualitative Depiction of ESA Listing Factors





# Example: Lower Columbia River coho

## Qualitative Depiction of ESA Listing Factors

