

# Limiting Factors for Hatchery Management, Endangered Species Act (ESA), Logistics, and Risk

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# Biological

## All MPGs within an ESU must be at low risk (viable)

- 1)  $\frac{1}{2}$  or at least 2 populations within MPG viable or highly viable.
- 2) At least one population highly viable.
- 3) Proportional representation of very large, large, intermediate populations
- 4) All major life histories represented
- 5) Populations not meeting viability standards should be maintained

## ESA Recovery Plan for Idaho Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead

November 2017



CHAPTER 5

WEST COAST REGION

# ESA Compliance- Hatchery and Genetic Management Plans

**NOAA FISHERIES**

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

| **West Coast Region**



[West Coast Region Home](#) » [Hatcheries](#)

A close-up photograph of numerous salmon eggs, which are orange and translucent, with some showing dark spots (eyes).

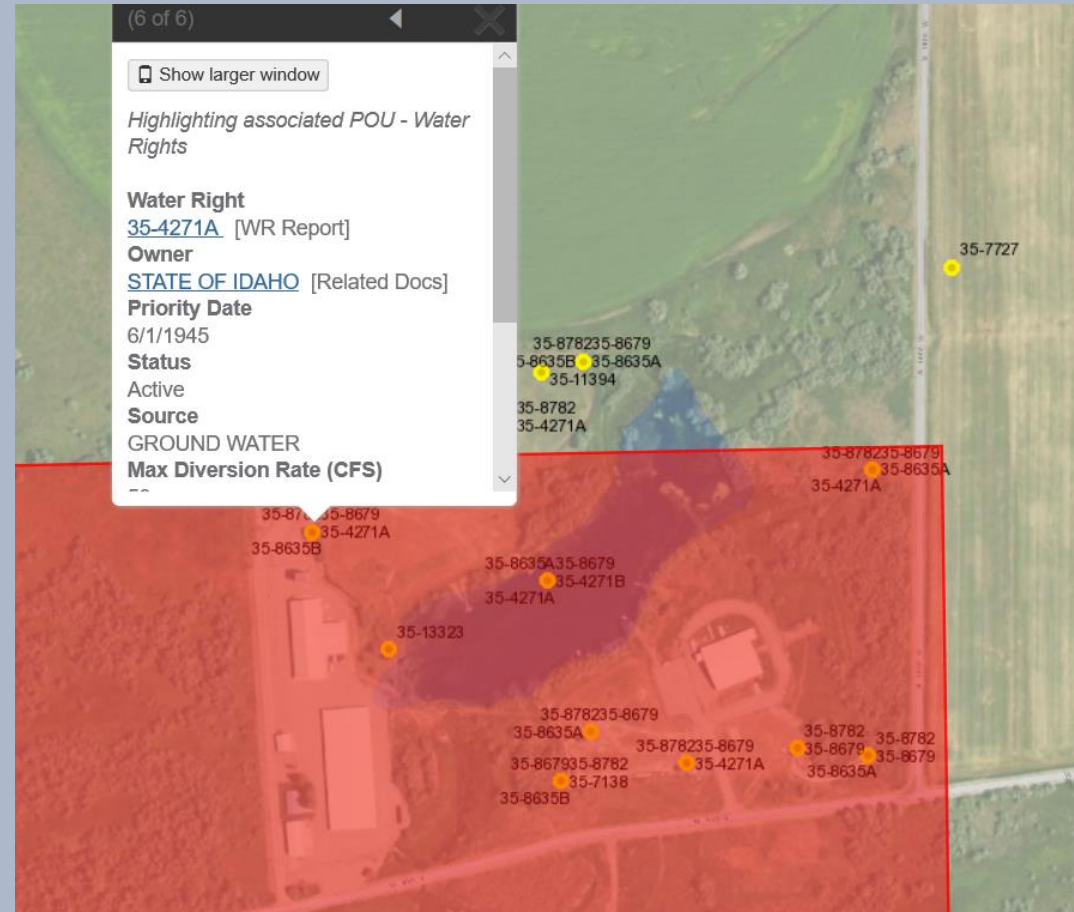
# HATCHERIES

## Salmon & Steelhead Hatcheries

# Water-

1) Availability

2) Quantity



IDAHO DEPARTMENT  
OF WATER RESOURCES

## A Water Users Information Guide



## IDAHO WATER RIGHTS A PRIMER

# Water-

1) Availability

2) Quantity-  
Well /Pumped

## ENVIRONMENT

# Generator failure that killed millions of Chinook salmon was preventable, state finds

A state investigation found that a generator failure that killed 4.1 million Chinook salmon was caused by a faulty battery connection and could have been prevented.

Author: KING 5 Staff

Published: 5:00 PM PDT June 17, 2019

Updated: 5:43 PM PDT June 17, 2019

*Editor's note: The attached video originally aired in December 2018.*

A generator failure at a Pierce County hatchery that led to the death of millions of Chinook salmon fry was caused by a loose or cracked connection with the battery, according to a state report released Monday.

The Washington State Department of Fish and Wildlife [investigation](#), which was conducted by outside contractors, found the poor connection could have been detected and repaired “under normal conditions”

# More about Water-

1) Availability

2) Quantity

3) Quality

Temperature  
Disease

Environment

## Disease kills 150,000 fish in hatchery's 2nd major die-off this year

Updated Jan 09, 2019; Posted Aug 21, 2015



0  
shares

By [Kelly House](#) | [The Oregonian/OregonLive](#)

steelhead

An adult steelhead shown in the water. More than 150,000 juvenile steelhead have died in a hatchery on the North Umpqua River.

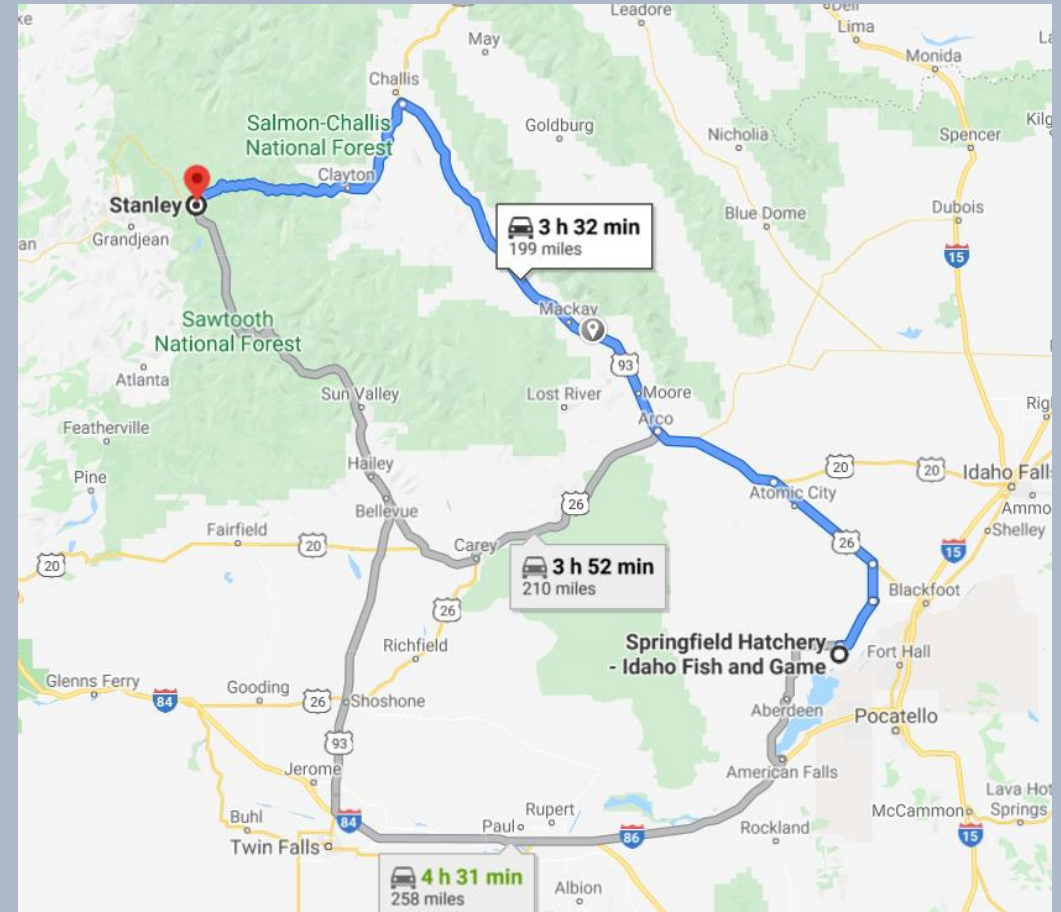
*(Ken Westphal-Williams)*

Disease stemming from warm water in the North Umpqua River



# Logistics- Water+Space Sockeye Example

- 1 Million Sockeye Smolts
  - 255 miles one way
  - 6 days-
  - 5 Trucks/day
  - 30 truck trips
- >7,000 Miles Driven



# Logistics- Fish

## PRESS RELEASE

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### Commission closes steelhead fishery in Clearwater River basin

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By Brian Pearson, Conservation Public Information Specialist

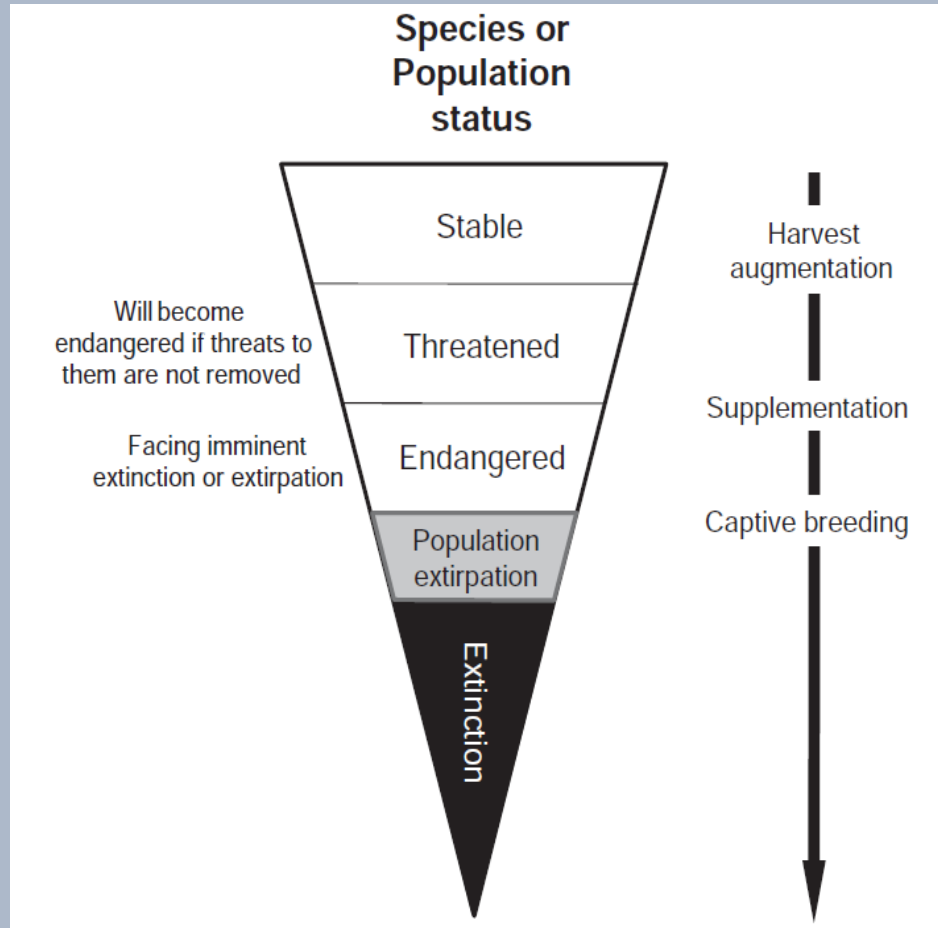
Friday, September 20, 2019 - 9:20 AM MDT

New Clearwater Coho fishery approved, ongoing fall Chinook fishery will continue

## Press Archives



# Risk-



Program Goals

Mitigation/Harvest

Supplementation

*Integrated*

Gene Banks

*(e.g. Snake River Sockeye Salmon)*

# Risk-

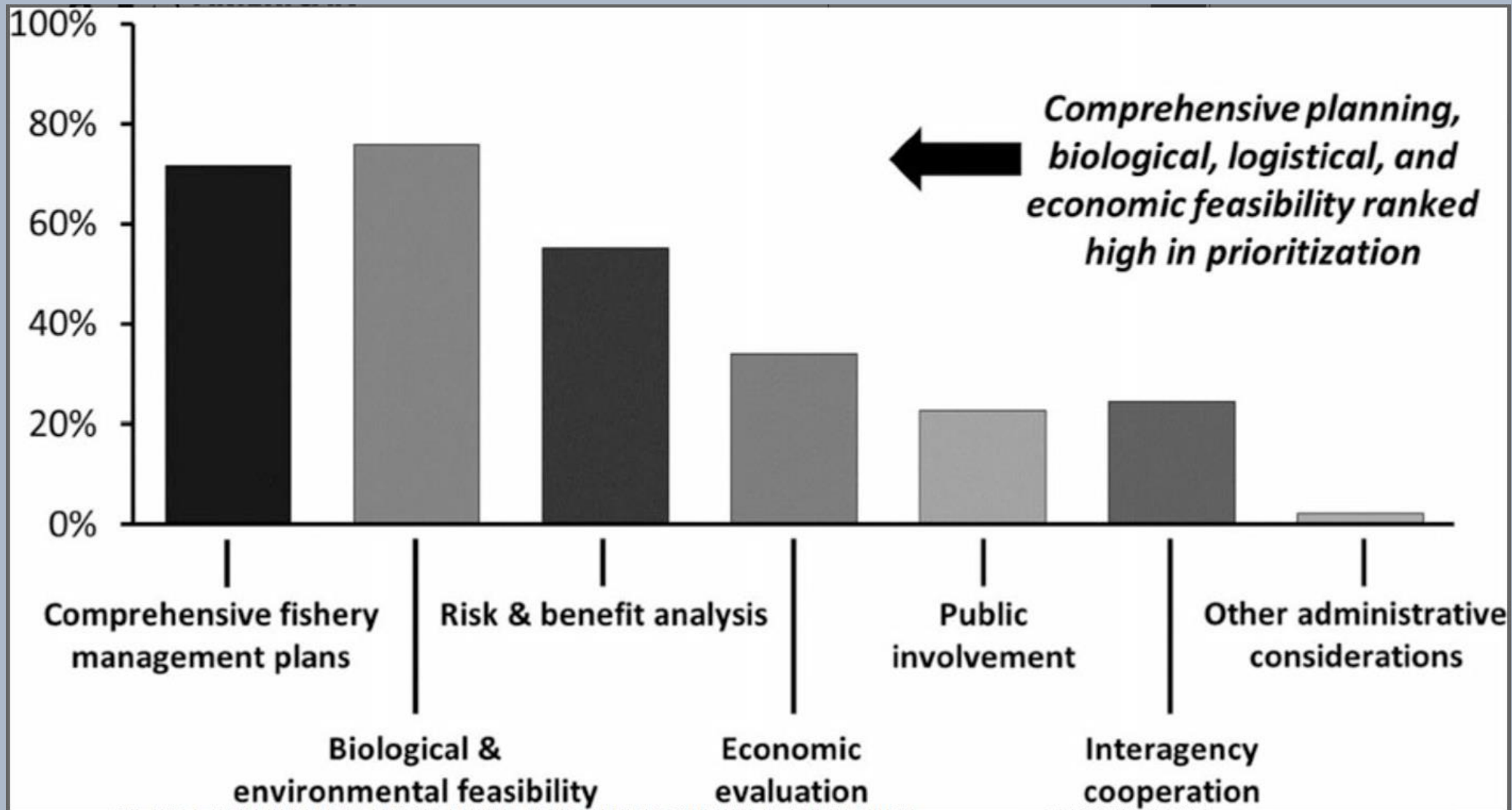


Figure 3. From Trushenski et al. 2015 Hatcheries and Management of Aquatic Resources (HaMAR)