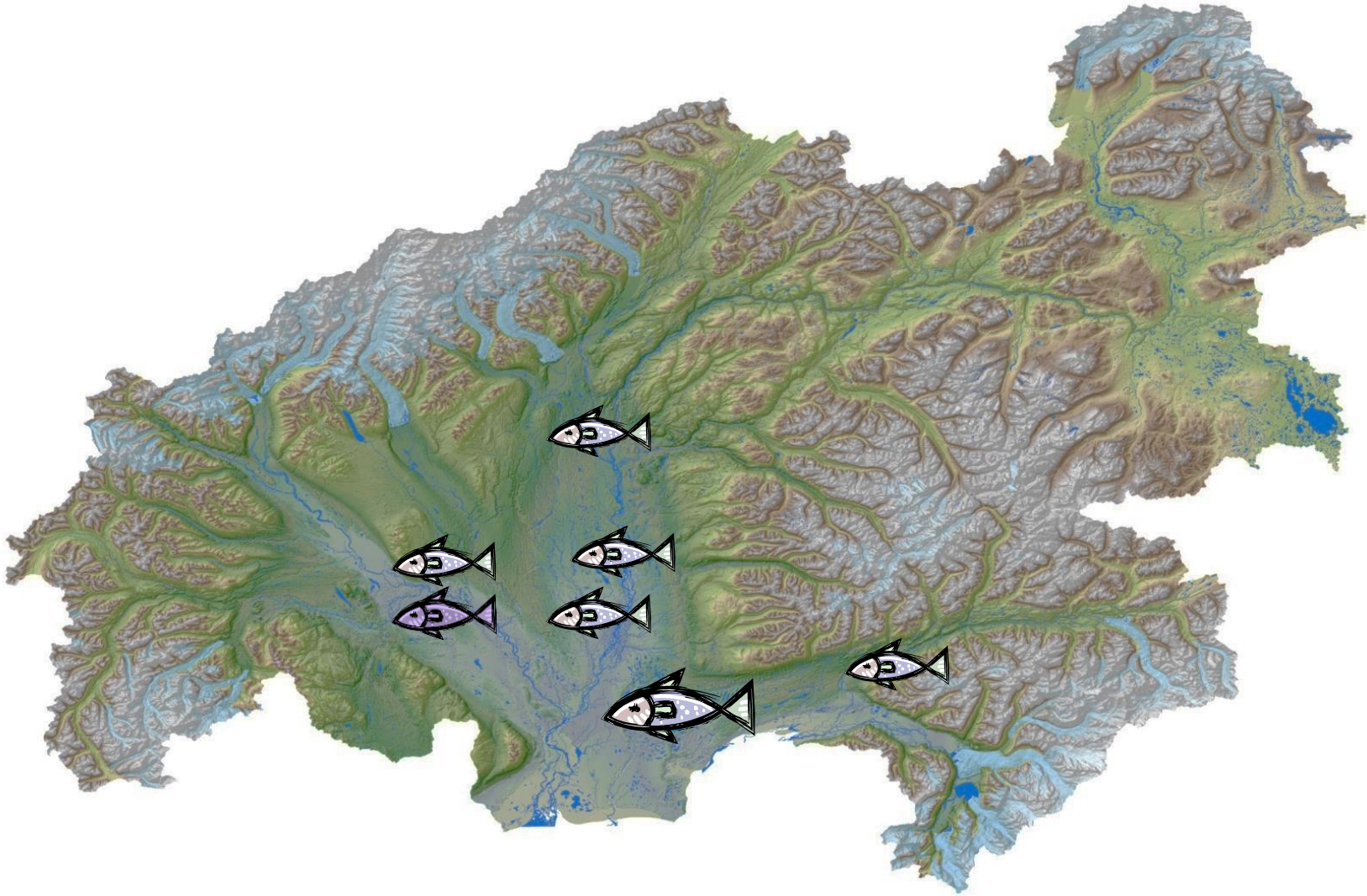
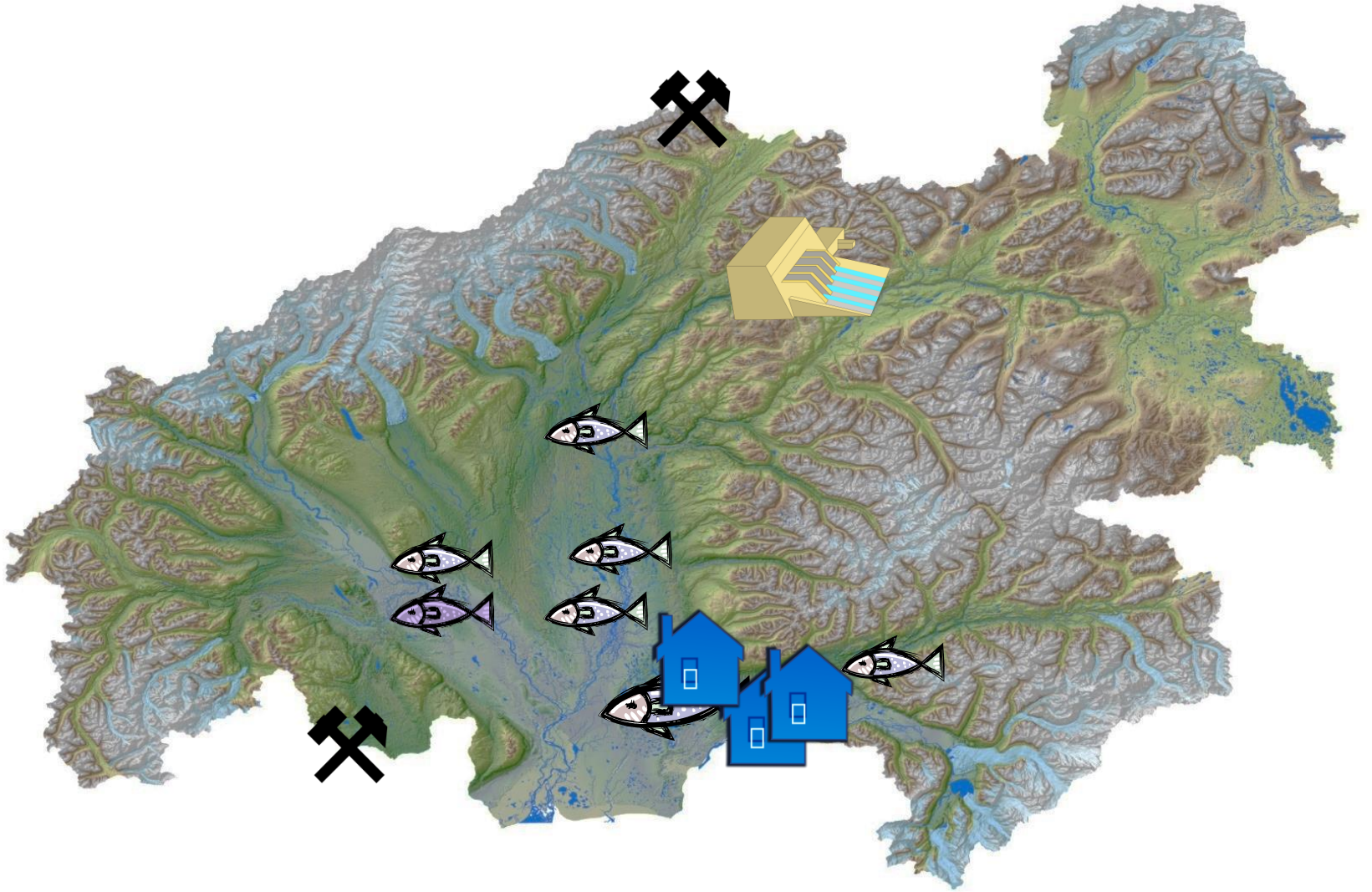
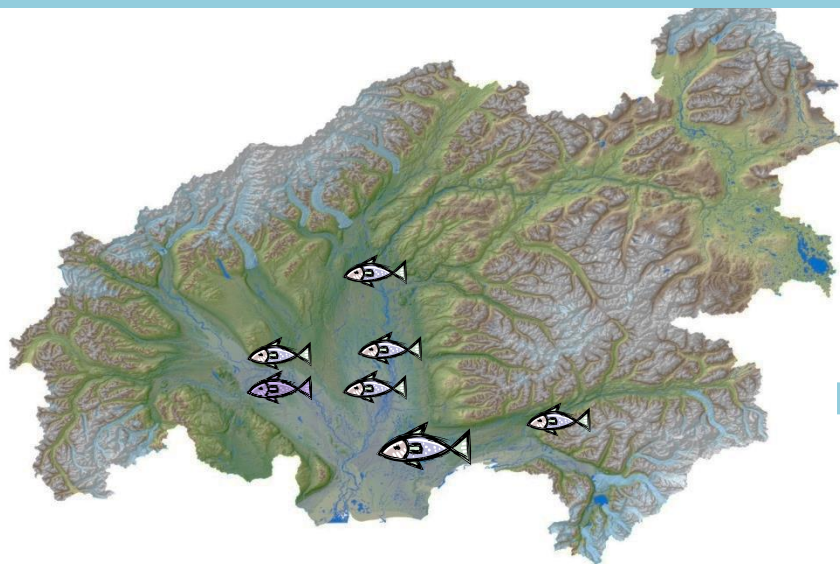


Landscape-scale mapping of Pacific Salmon and their freshwater habitats









**The Nature
Conservancy** 
Protecting nature. Preserving life.™

**Stakeholders, decision-
makers, and general
public**

**Ecosystem benefits of
abundant salmon**

**Conservation, sustainable
development, social well-being,
restoration, research**

Objectives

- Map patterns of adult salmon relative abundance
- Map freshwater habitat characteristics and develop conceptual intrinsic potential models for juvenile salmon by species
- Identify information gaps and describe potential future research activities

Process

Draft Report



Expert review



Publish and
disseminate

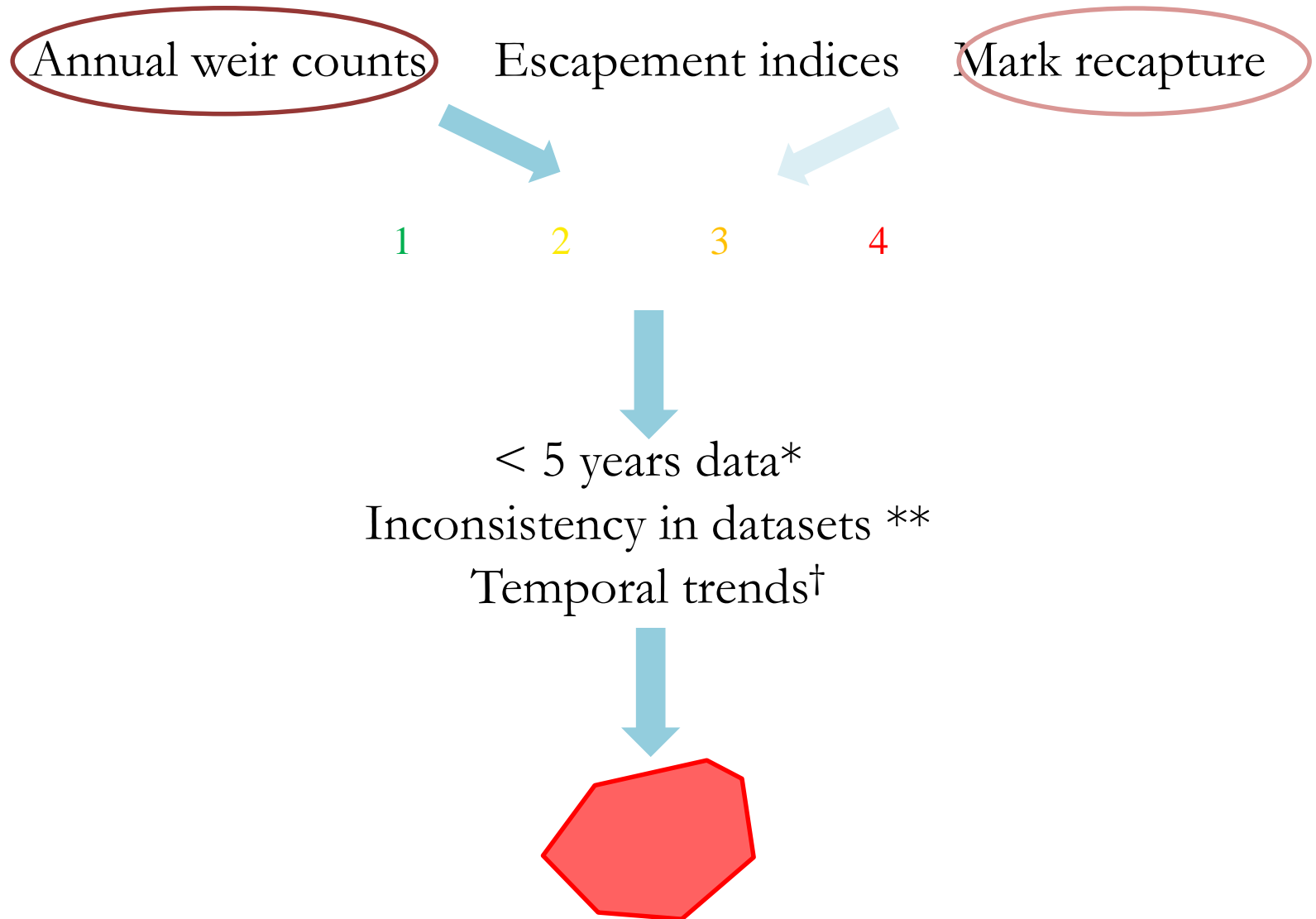


Adult salmon abundance and distribution

- Anadromous Waters Catalog
- Annual catch and escapement surveys
- Annual indexes of escapement
- Periodic mark-recapture studies
- Periodic spawning surveys



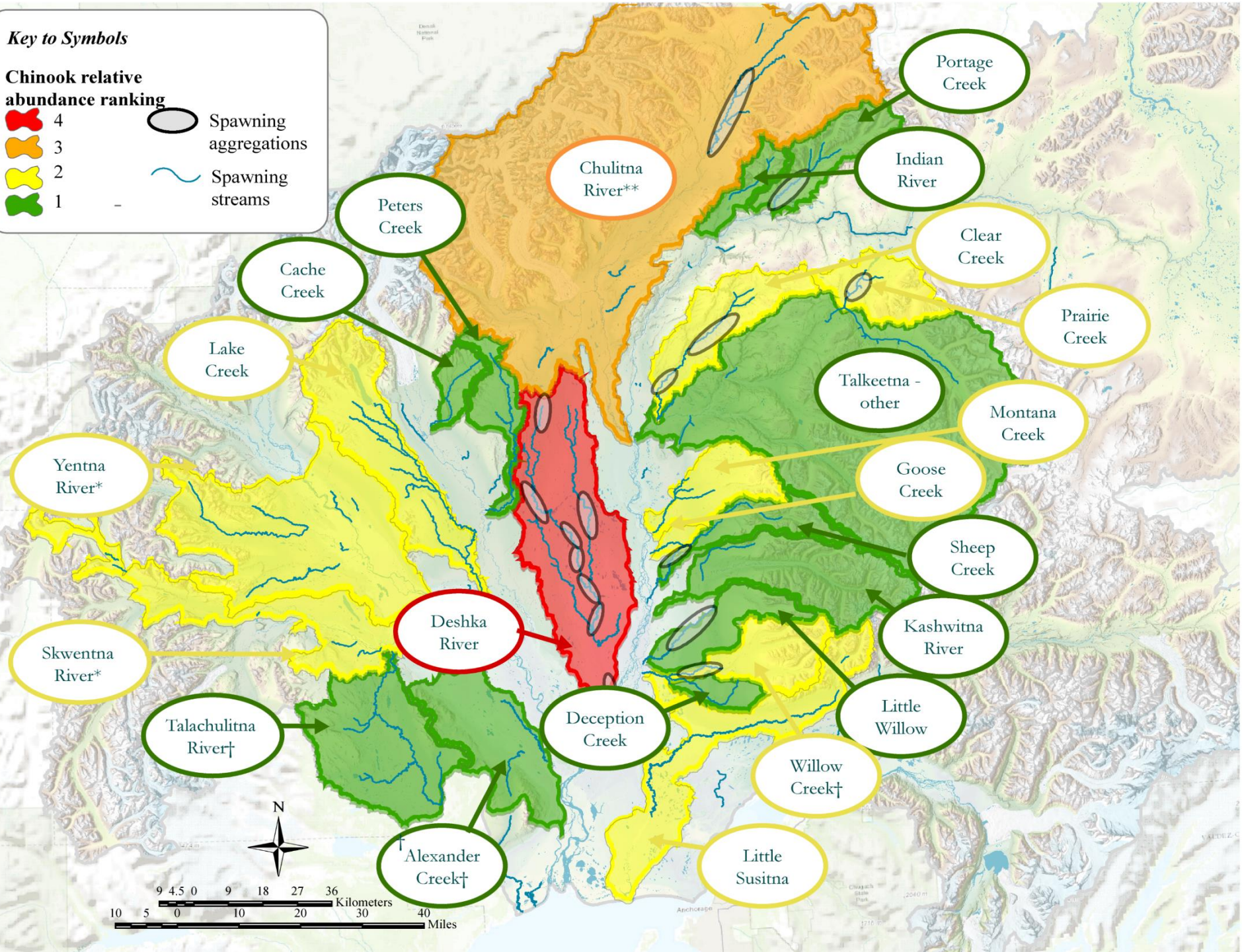
Ranking adult relative abundance



Key to Symbols

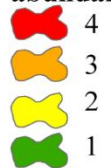
Chinook relative abundance ranking

- 4 (Red shape)
 - 3 (Orange shape)
 - 2 (Yellow shape)
 - 1 (Green shape)
 - (White shape)
- Spawning aggregations
~ Spawning streams

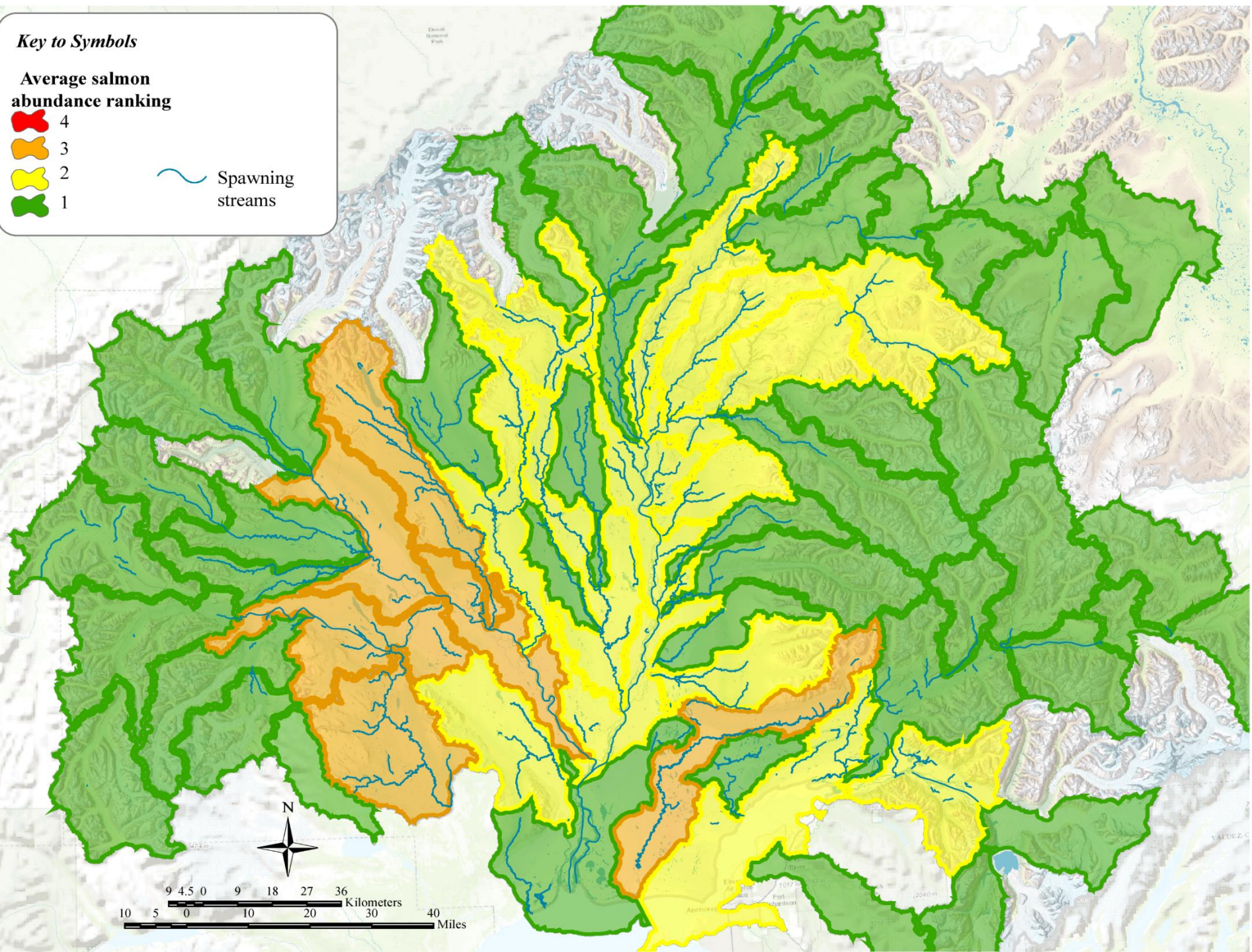


Key to Symbols

Average salmon abundance ranking

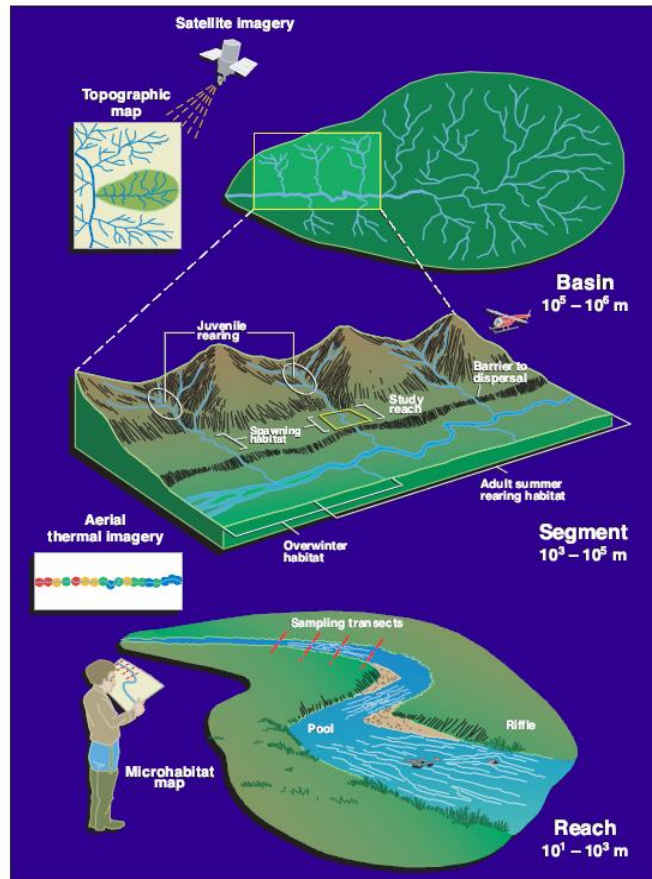


 Spawning streams

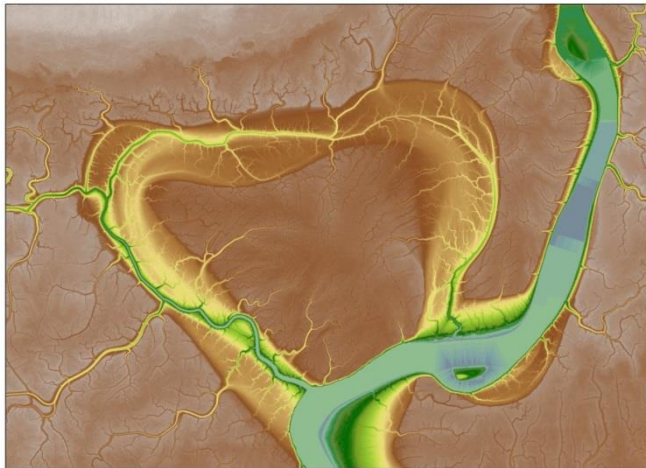




Map reach-scale freshwater habitat characteristics across the Mat-Su Basin and conceptual intrinsic potential models for juvenile salmon by species



Fausch et al 2002



Conduct Your Own Science: A Living Analysis

Analysis Tools (80)

- multi functional
- user friendly
- online technical help

Digital Landscapes

- geographically consistent
- multi functional
- advanced capabilities

Online TerrainViewers

- BigPictureViewer
- FireViewer

Universal Platform

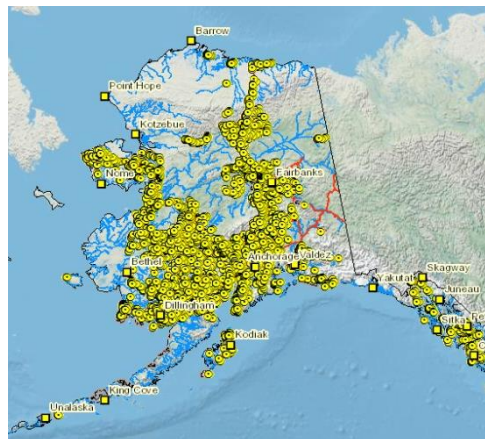
- other applications
- 3rd party developers

Hybrid Open Source

Interdisciplinary

- physical processes
- biological processes
- human activities

Supported & Maintained: Continuously Updated



USGS
science for a changing world

Prepared in cooperation with U.S. Fish and Wildlife Service

Baseline Channel Geometry and Aquatic Habitat Data for Selected Streams in the Matanuska-Susitna Valley, Alaska

Scientific Investigations Report 2009-5084

U.S. Department of the Interior
U.S. Geological Survey

Juvenile salmon habitat

Basic characteristics and size

Distance and length

Gradient

Lakes and Glaciers

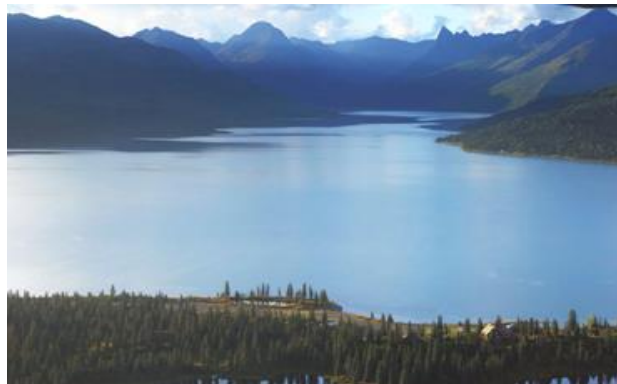
Stream Order

Drainage Area

Mean Annual Flow

Bankfull Width

Bankfull Depth



Juvenile salmon habitat

Other fluvial processes

Substrate size

Sinuosity

Floodplain width

Valley width

Channel confinement

Tributary effects



Juvenile salmon habitat

Human impacts

Road density
Road crossings
Red pipes



Juvenile salmon habitat

Other habitat characteristics

Glacial influence
Large woody debris
Natural barriers
Wetlands
Pike coverage
Beaver habitat

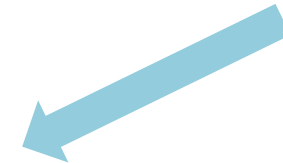


Ranking juvenile rearing reaches



Local and regional habitat relationships

Habitat characteristics



Negligible IP

Low IP





Moderate IP

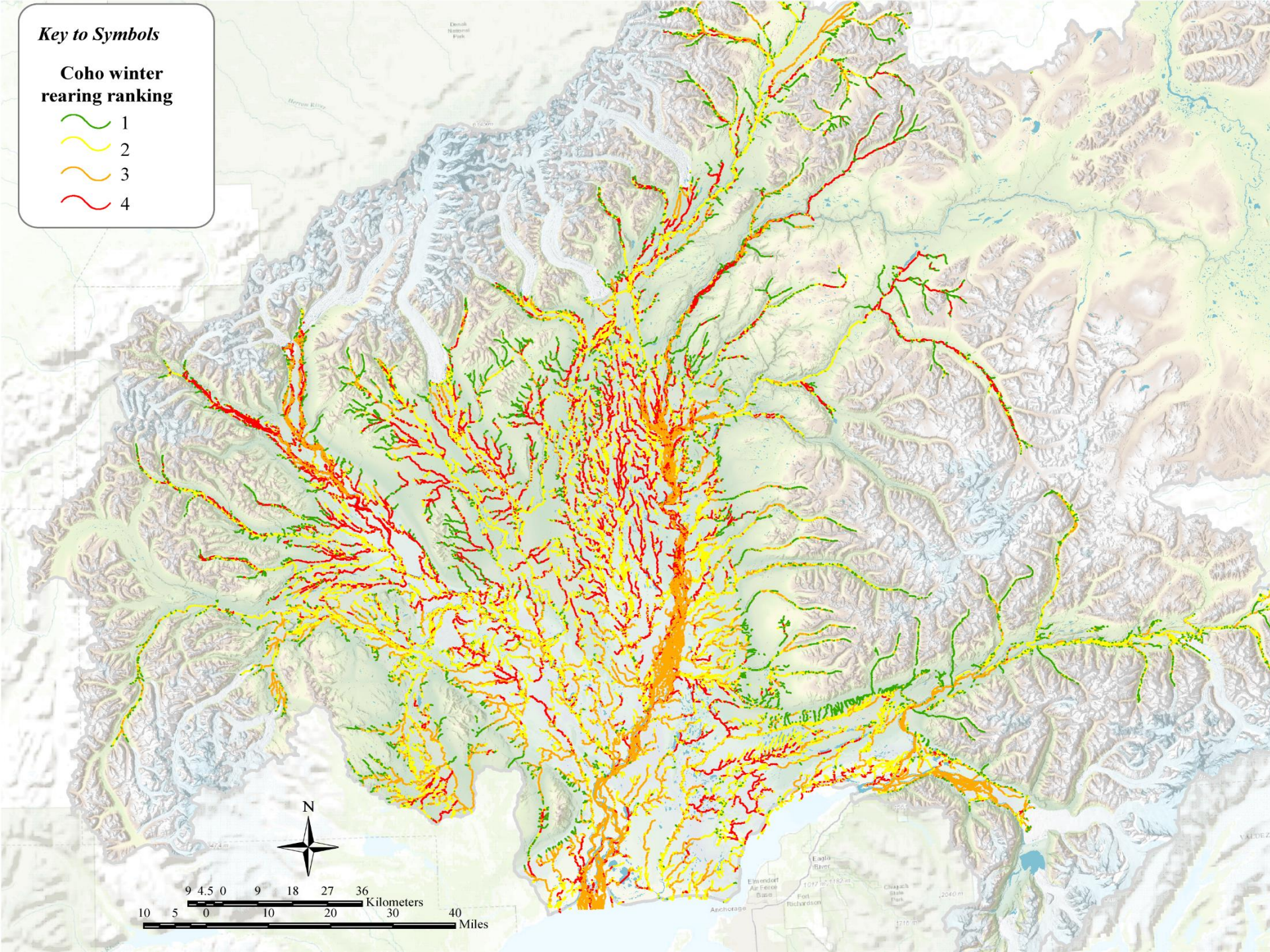
High IP



Key to Symbols

Coho winter rearing ranking

-  1
-  2
-  3
-  4



Data gaps and need for research

Transactions of the American Fisheries Society 122:550-559, 1993
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Variation in Life History Characteristics and Morphology of Sockeye Salmon in the Kvichak River System, Bristol Bay, Alaska

GREGORY R. BLAIR,¹ DONALD E. ROGERS, AND THOMAS P. QUINN

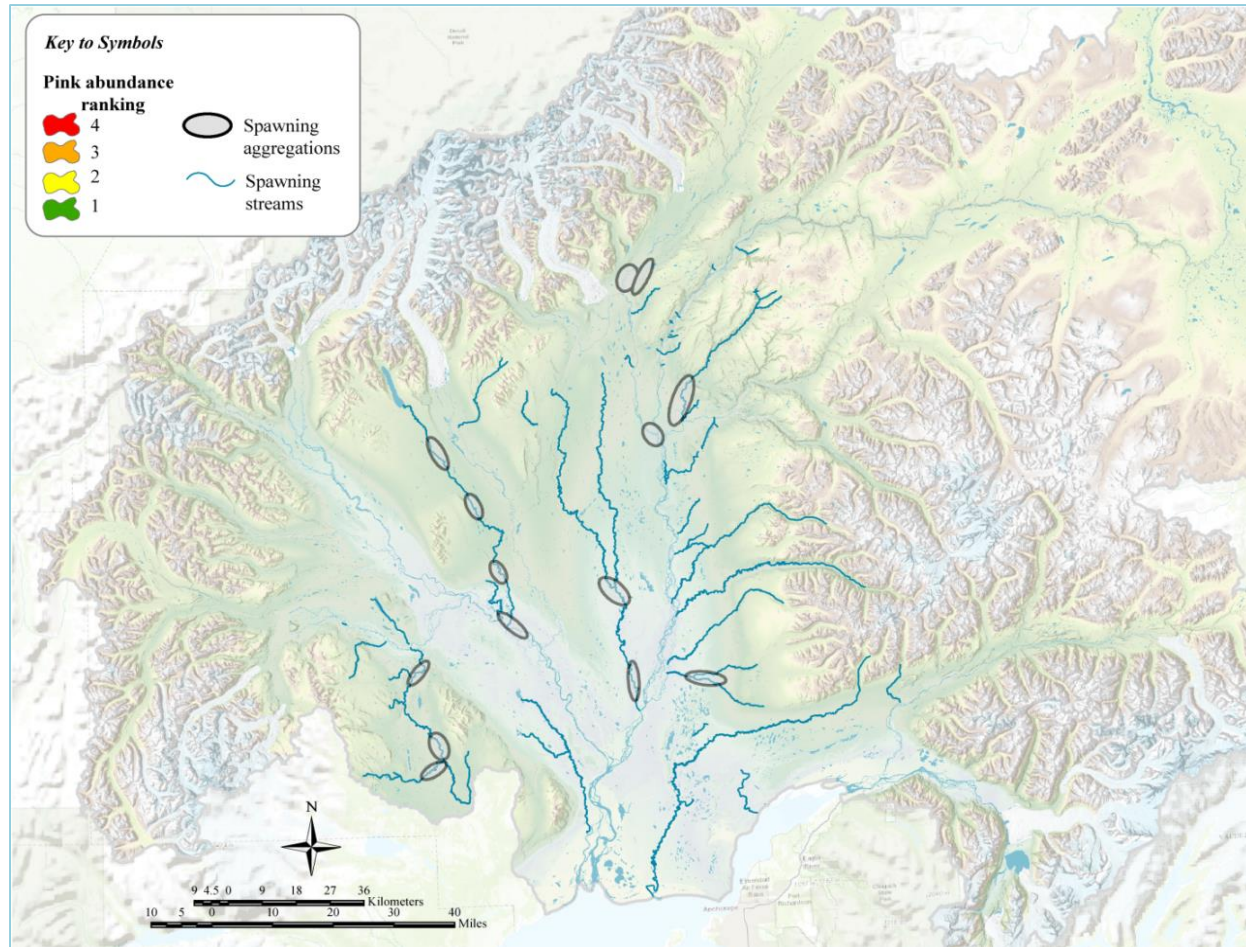
*Fisheries Research Institute, School of Fisheries, WH-10
University of Washington, S*

LETTERS

Population diversity and the portfolio effect in an exploited species

Daniel E. Schindler¹, Ray Hilborn¹, Brandon Chasco¹, Christopher P. Boatright¹, Thomas P. Quinn¹, Lauren A. Rogers¹
& Michael S. Webster²

Data gaps and need for research



Data gaps and need for research



Data gaps and need for research



Draft Report



Expert review



**Publish and
disseminate**



Conservationgateway.org

**Landscape-scale mapping of Pacific Salmon and their
freshwater habitats in the Mat-Su Basin**

Questions?

Reviewers:

- Pat Shields
- Franklin Dekker
- Jeff Davis
- MaryLou Keefe
- Bill Rice
- J. Johnson
- John Seigle
- Aaron Wells
- Janet Curran

