The TNC Conservation Process

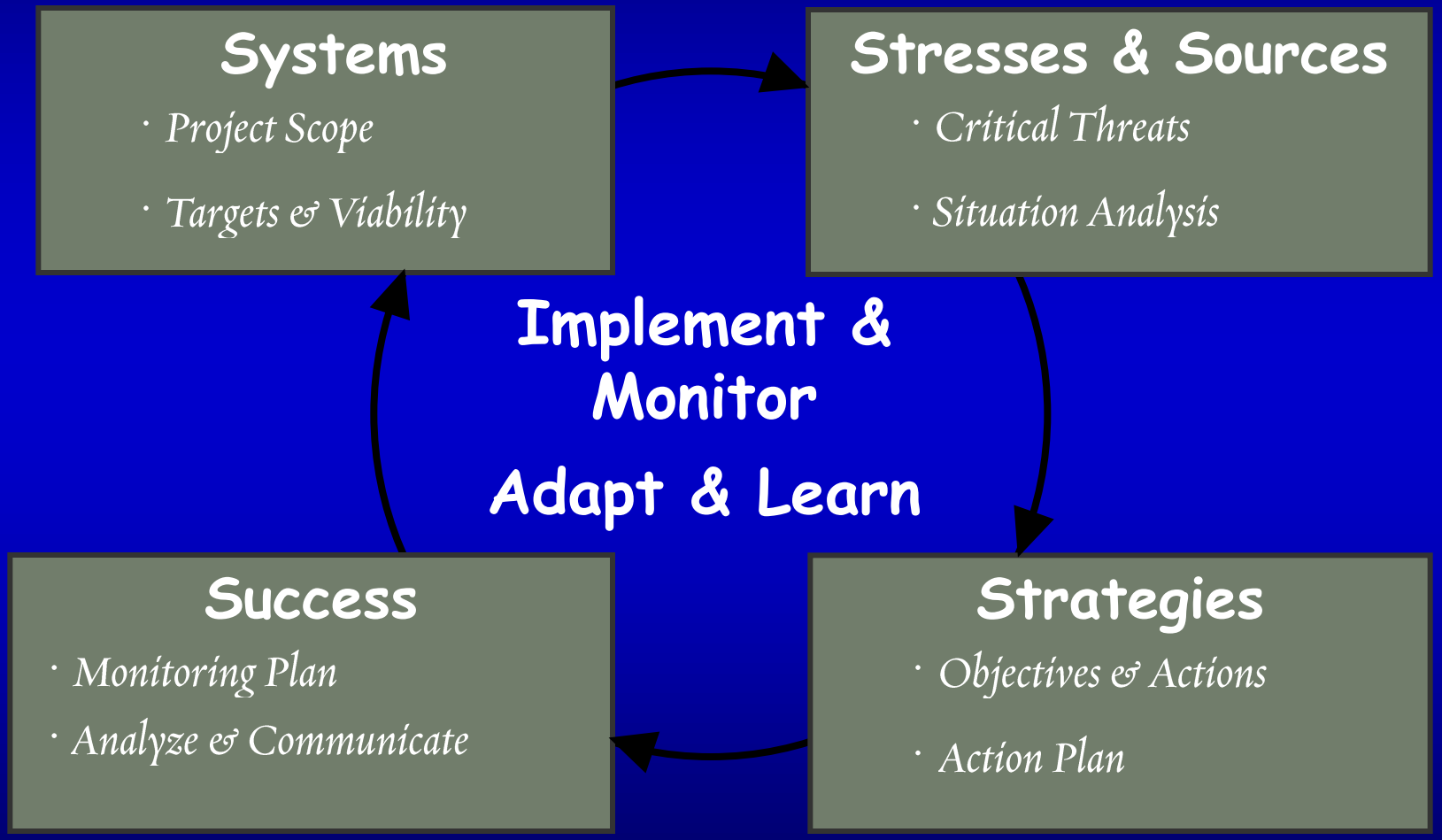
Setting Priorities

Designing Strategies

Conservation Action

Measuring Success

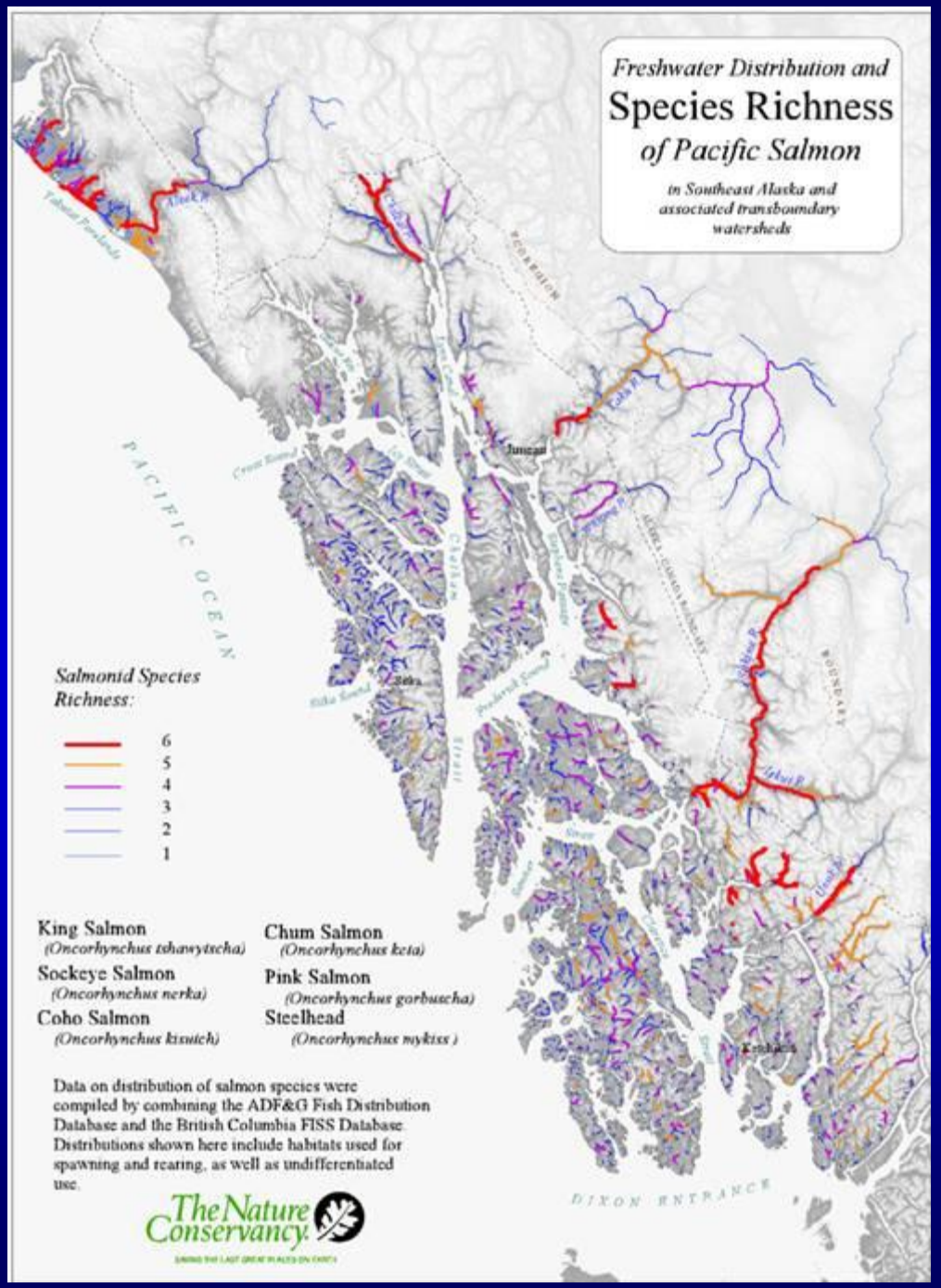
Designing Strategies: CAP process



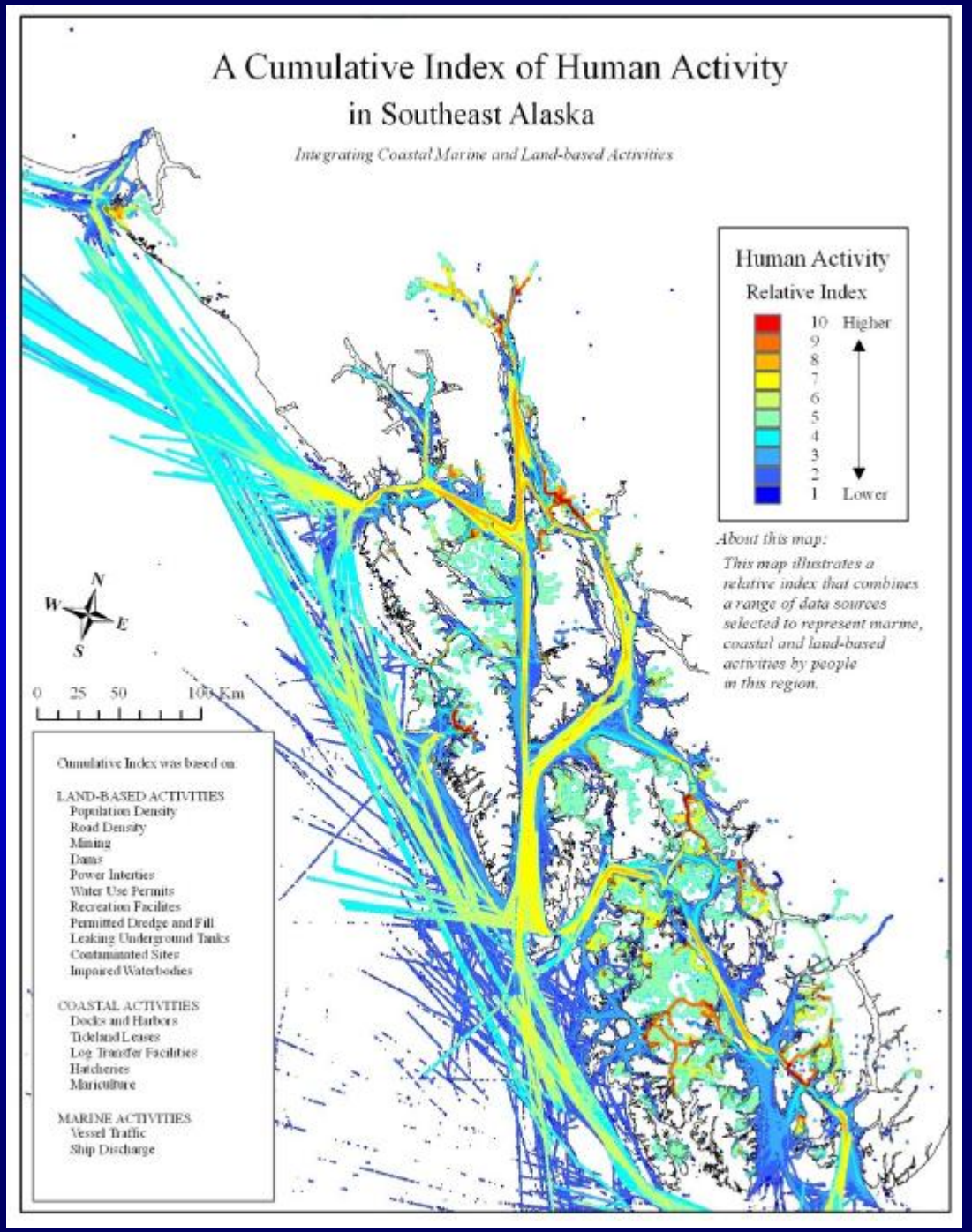
OUTLINE:

- Very quick assessment of salmon in SE
- Introduce Situation Analysis as a tool for strategic planning using 2 examples:
  - Coastal Forest generic example
  - Salmon life-stage example
- Is this useful?
- What is the ‘salmon situation’ in SE Alaska?

Freshwater Salmon Distribution



Index of Human Activities



Conceptual Framework for Biological Value and Risk:

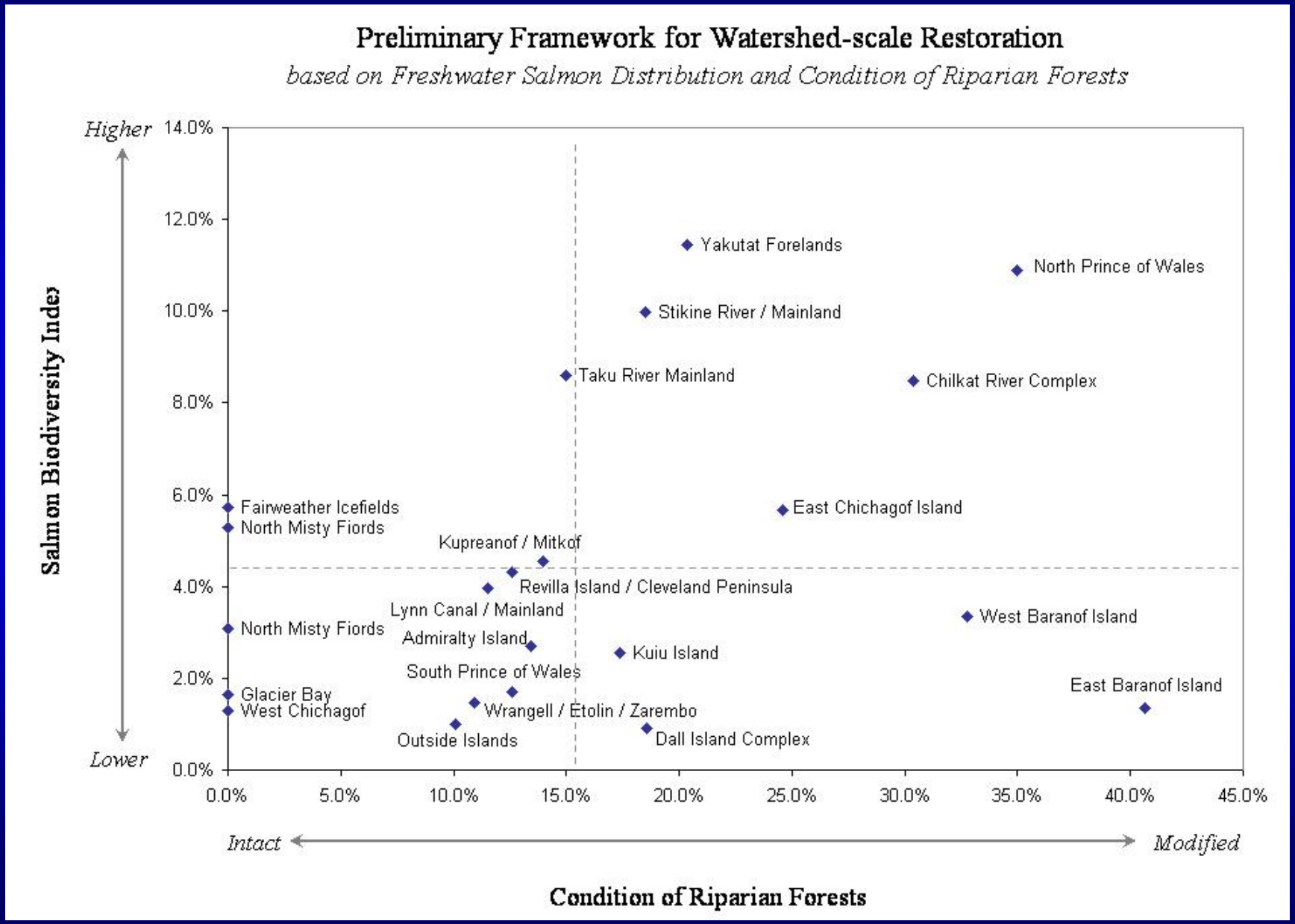
Moderate Priority Higher value / Lower risk	**Very High Priority** Higher value / Higher risk
Lower Priority Lower value / Lower risk	**High Priority** Lower value / Higher risk

Biological Value ↑

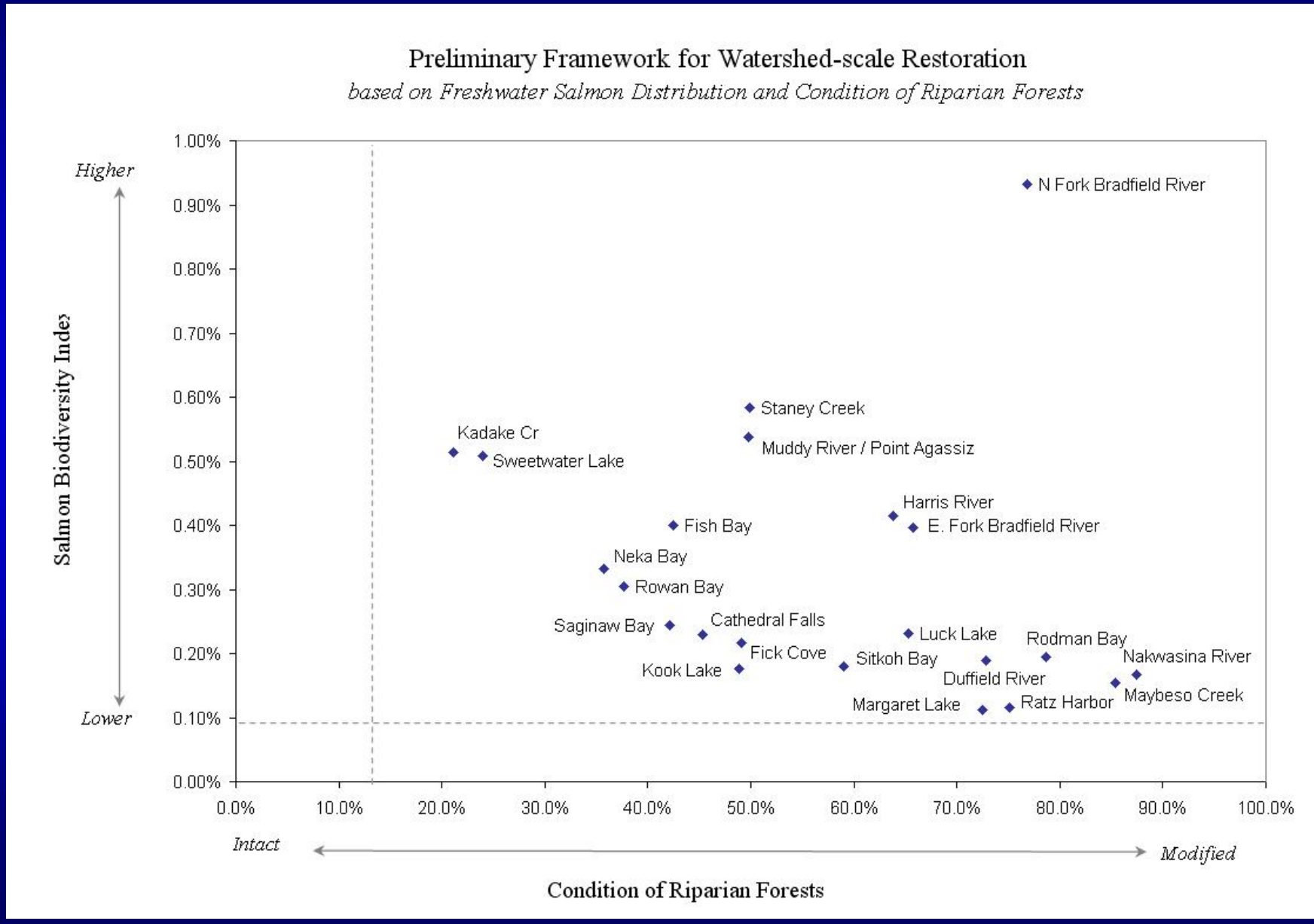
Ecological Risk →

Salmon Values and Riparian Condition

among Biogeographic Provinces



Top 20 watersheds within the Tongass NF



Situation Analysis

Understanding the Context for Strategy Development

Key Points to Introduce This Step

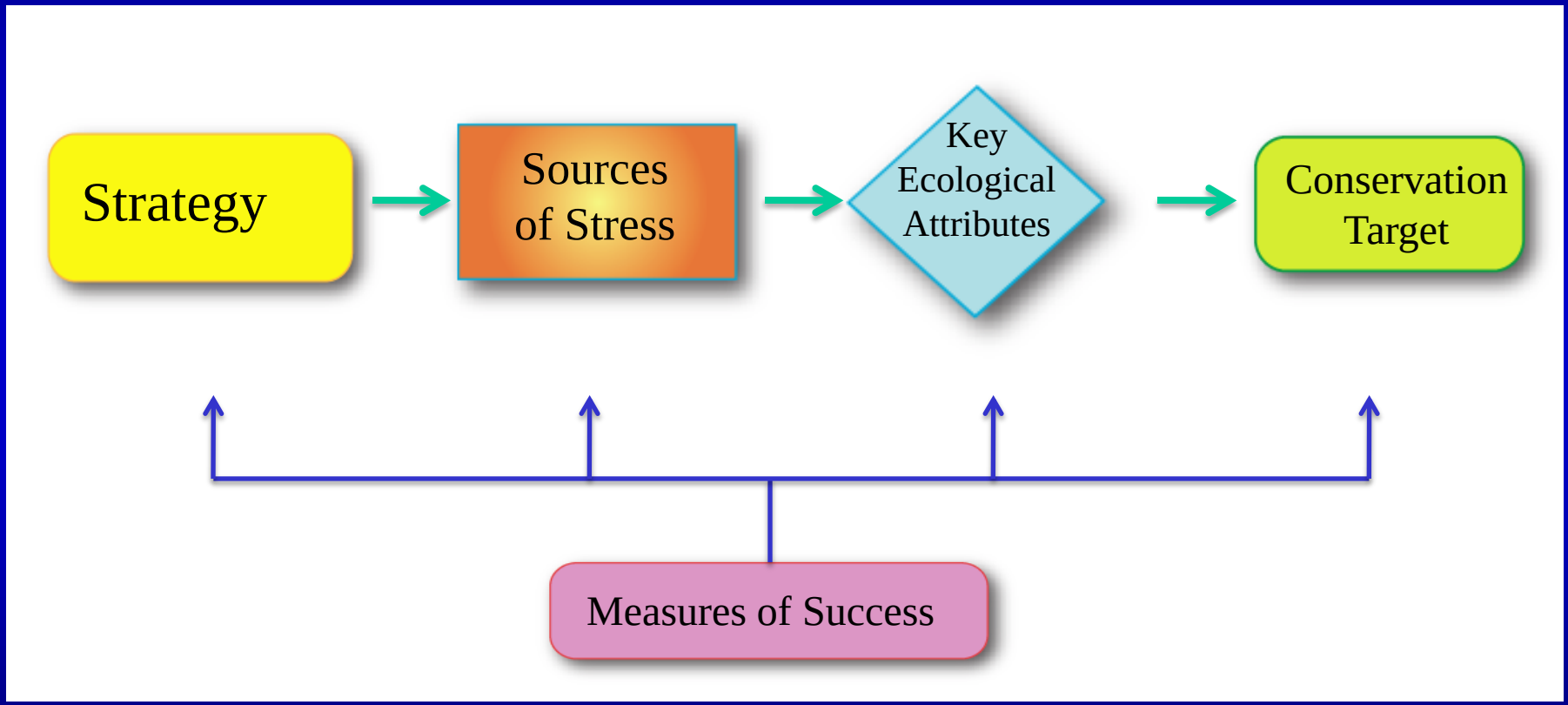
- Situation analysis is intended to help develop more robust conservation strategies…
  - Articulate and test the logic of our thinking
  - Evaluate the strategic importance of factors that cause threats or impair key attributes
  - Identify key constituencies
- Focus on your key objectives -- to abate critical threats or enhance target viability
- Probe for opportunities, not just causes
- There is no one right way…
  - Some teams use box & arrow diagrams
  - Others use probing questions

Critical Questions

- Does the analysis focus on key objectives that address a critical threat or impaired viability?
- Have all relevant types of factors been considered? (e.g., economic, political, cultural)
- Have inconsequential, irrelevant or redundant factors been excluded?
- Have key constituencies been identified, and the major factors that motivate them?
  - Who are the key decision makers
  - Who stands to gain
  - Who stands to lose

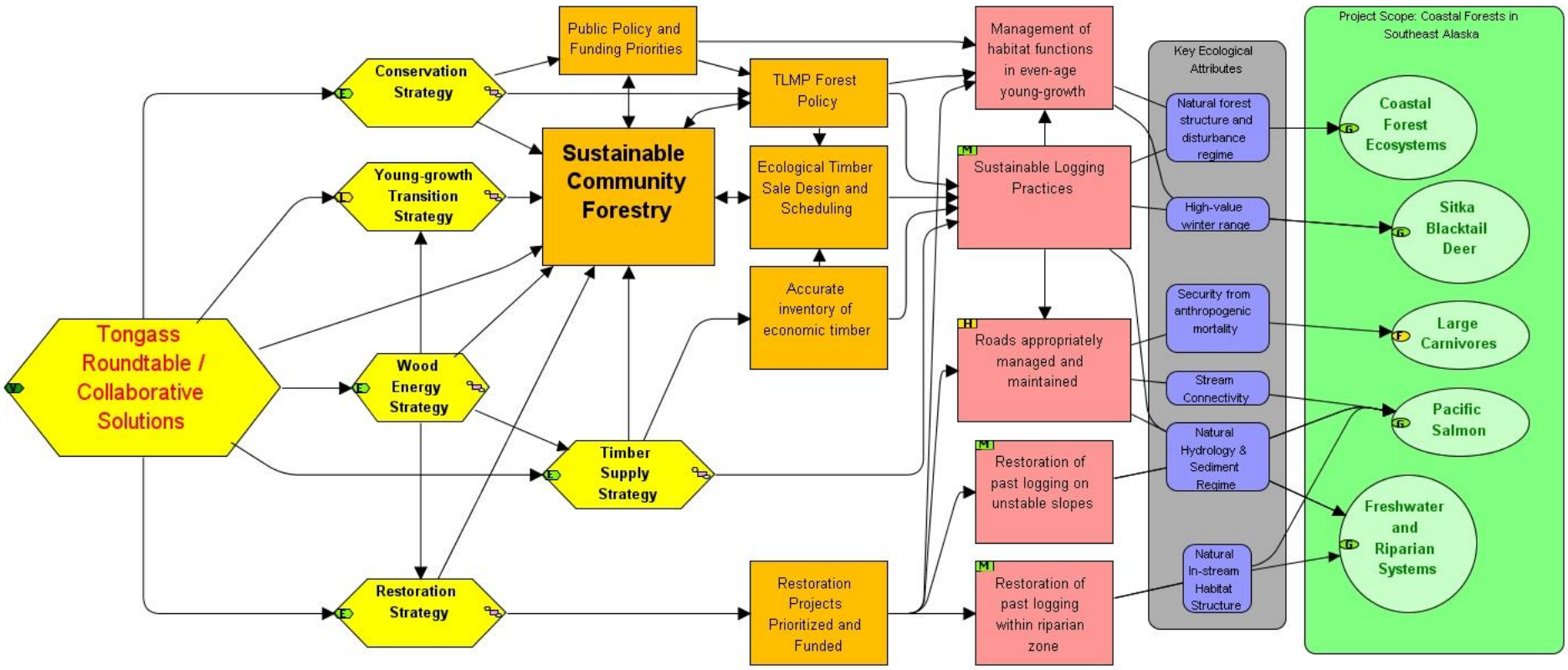
Conceptual Model for Conservation Planning:

Situation Analysis (TNC CAP) / Problem Formulation (EPA Ecological Risk Assessment)



From TNC (2007): A Conservation Action Planning Handbook: Developing Strategies, Taking Actions and Measuring Success at any Scale. The Nature Conservancy, Arlington VA. 129 pp.

A Conceptual Framework for Conservation Success on Prince of Wales Island



Sources of Stress

Risks to key ecological attributes associated with large-scale mining

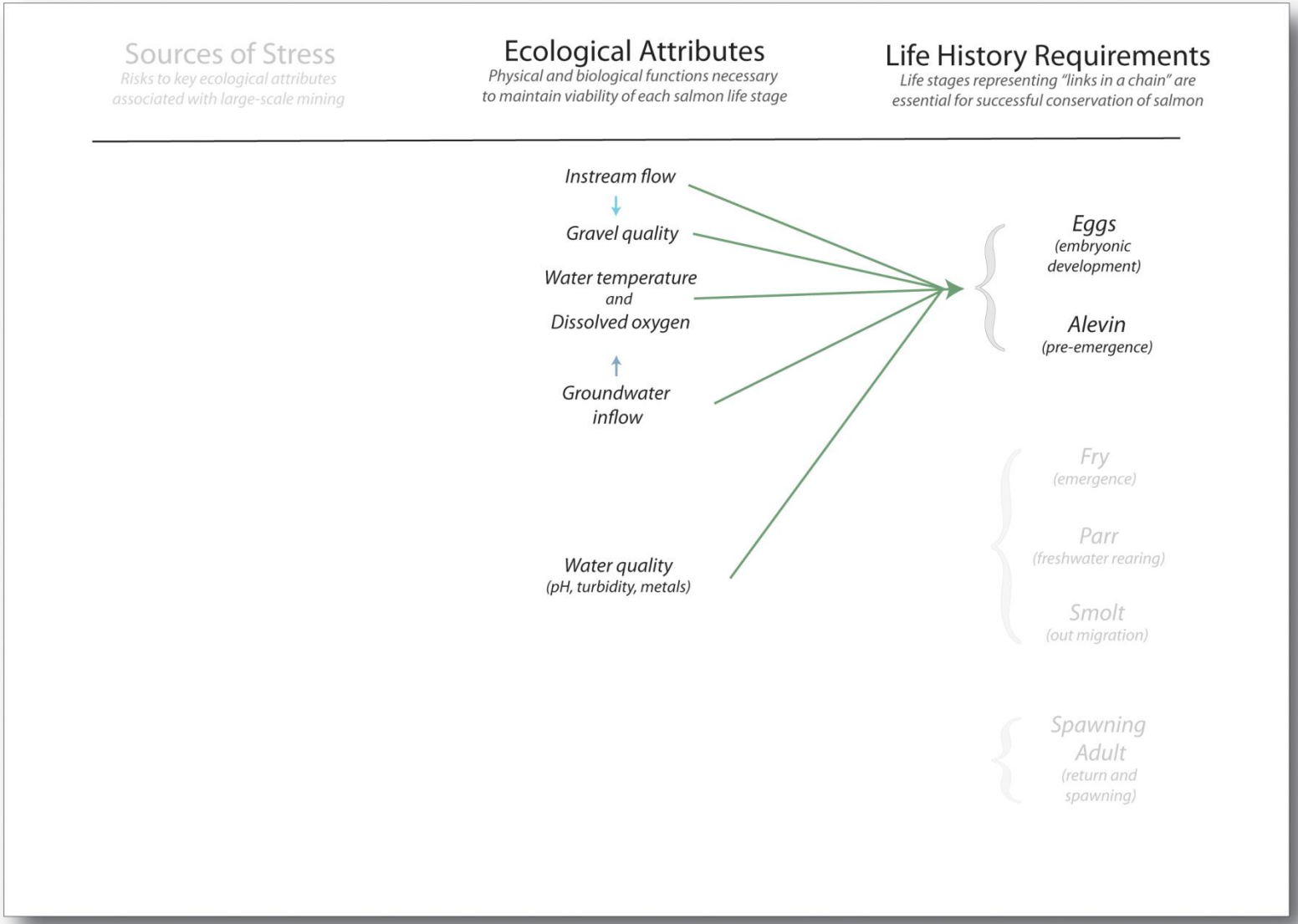
Ecological Attributes

Physical and biological functions necessary to maintain viability of each salmon life stage

Life History Requirements

Life stages representing "links in a chain" are essential for successful conservation of salmon

- *Eggs* (embryonic development)
- *Alevin* (pre-emergence)
- *Fry* (emergence)
- *Parr* (freshwater rearing)
- *Smolt* (out migration)
- *Spawning Adult* (return and spawning)


Sources of Stress
Risks to key ecological attributes associated with large-scale mining
Ecological Attributes
Physical and biological functions necessary to maintain viability of each salmon life stage
Life History Requirements
Life stages representing "links in a chain" are essential for successful conservation of salmon
Instream flow
Gravel quality
Water temperature and Dissolved oxygen
Groundwater inflow
Water quality (pH, turbidity, metals)
Eggs (embryonic development)
Alevin (pre-emergence)
Fry (emergence)
Parr (freshwater rearing)
Smolt (out migration)
Spawning Adult (return and spawning)

Sources of Stress

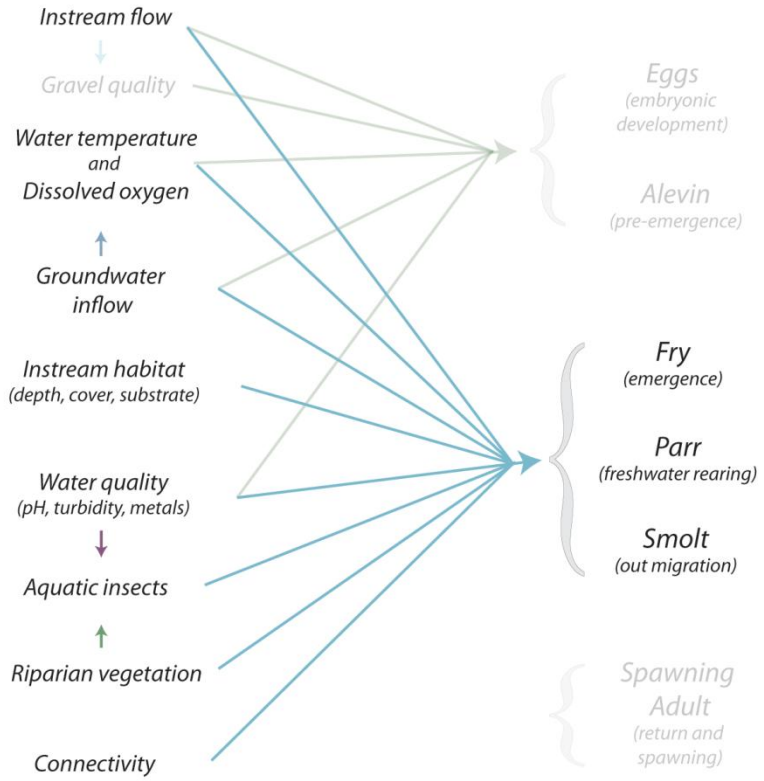
Risks to key ecological attributes associated with large-scale mining

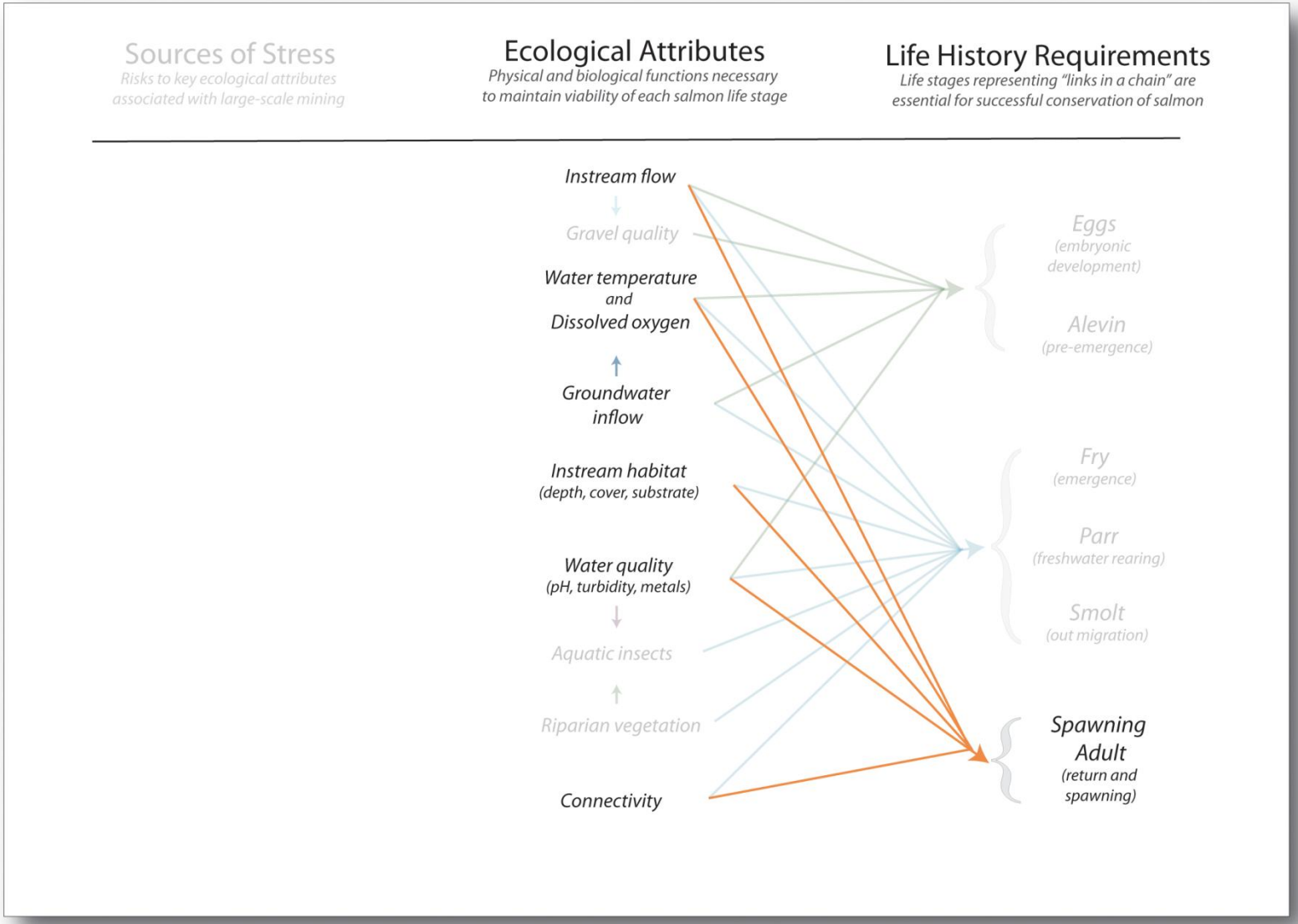
Ecological Attributes

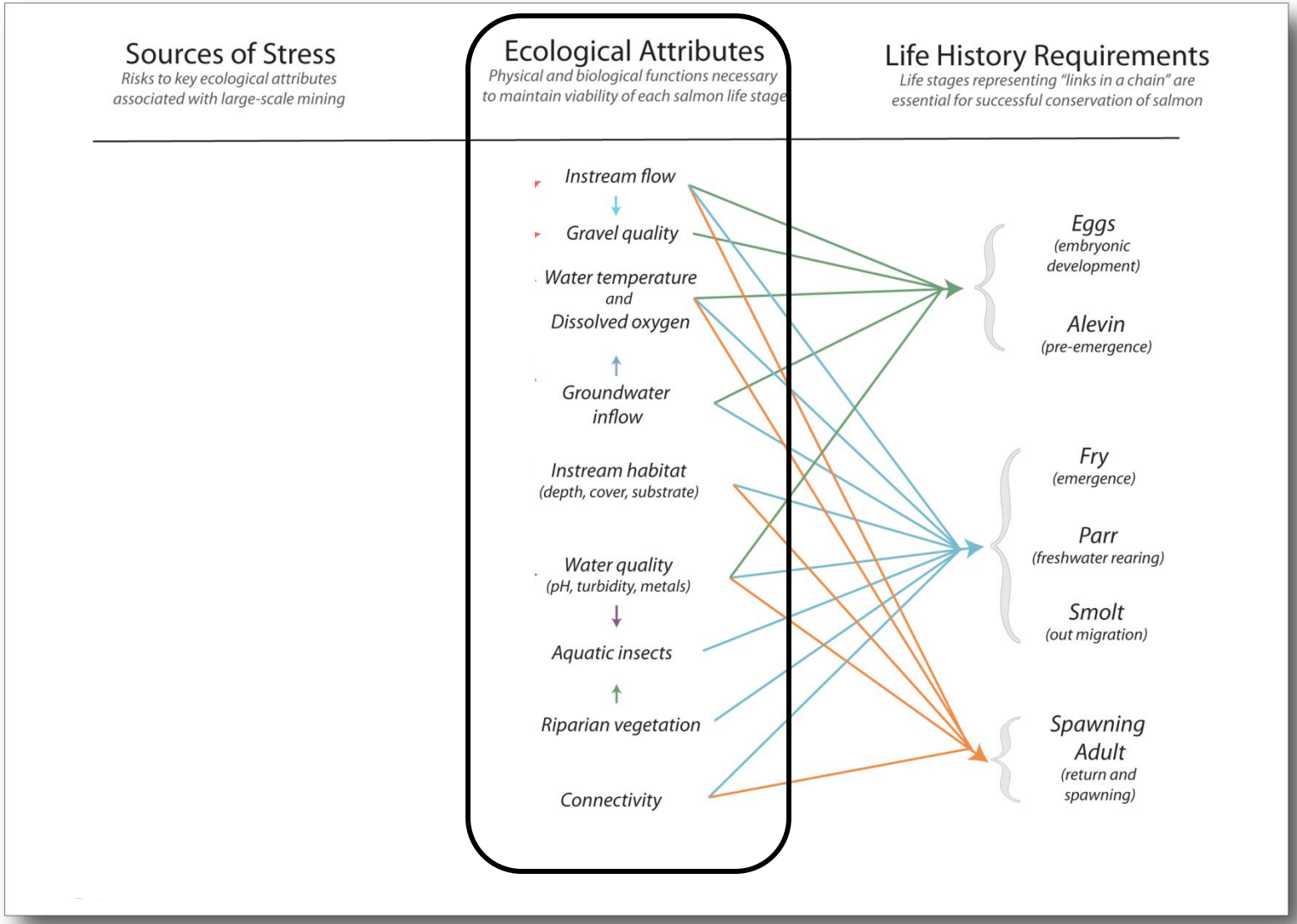
Physical and biological functions necessary to maintain viability of each salmon life stage

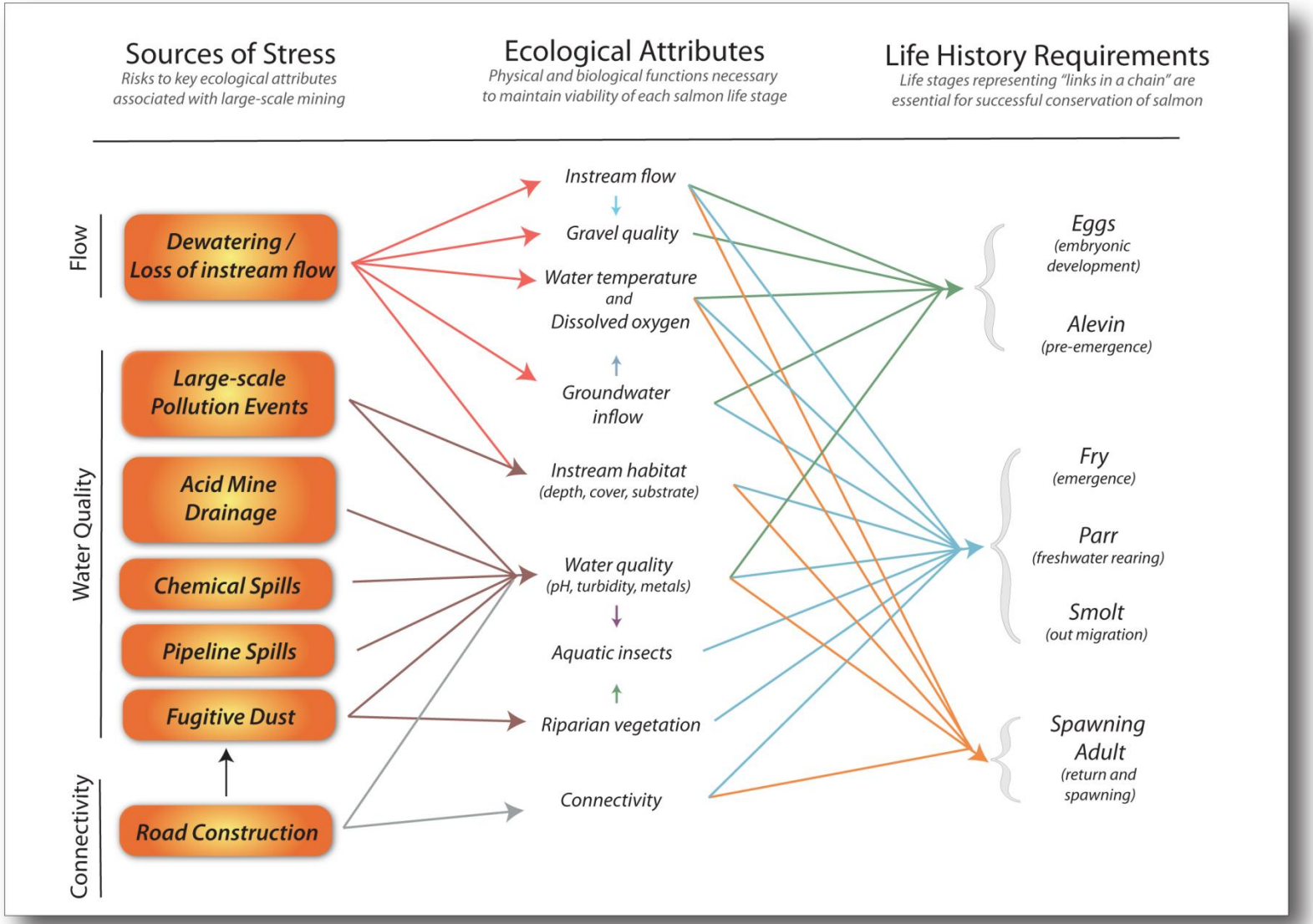
Life History Requirements

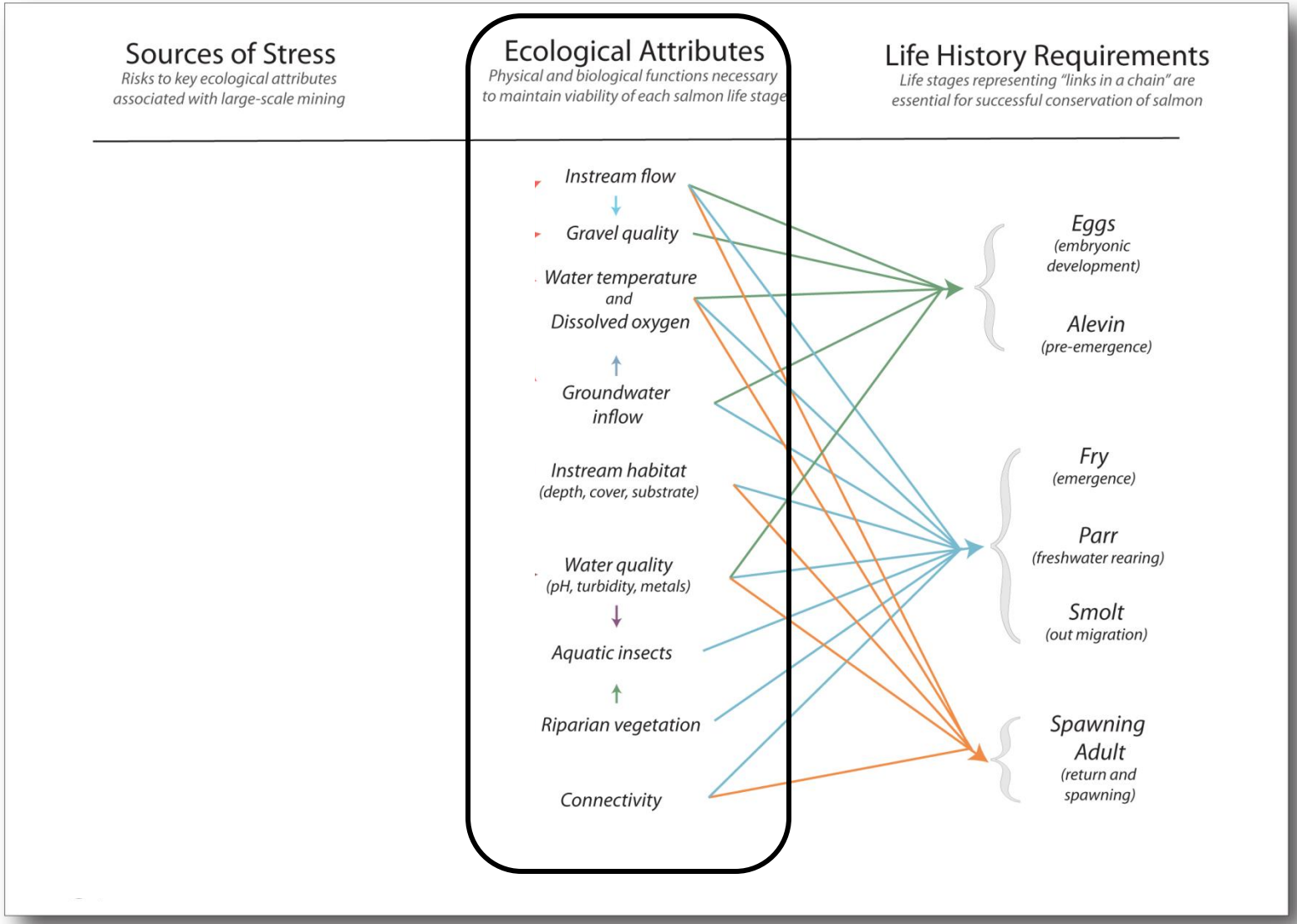
Life stages representing "links in a chain" are essential for successful conservation of salmon

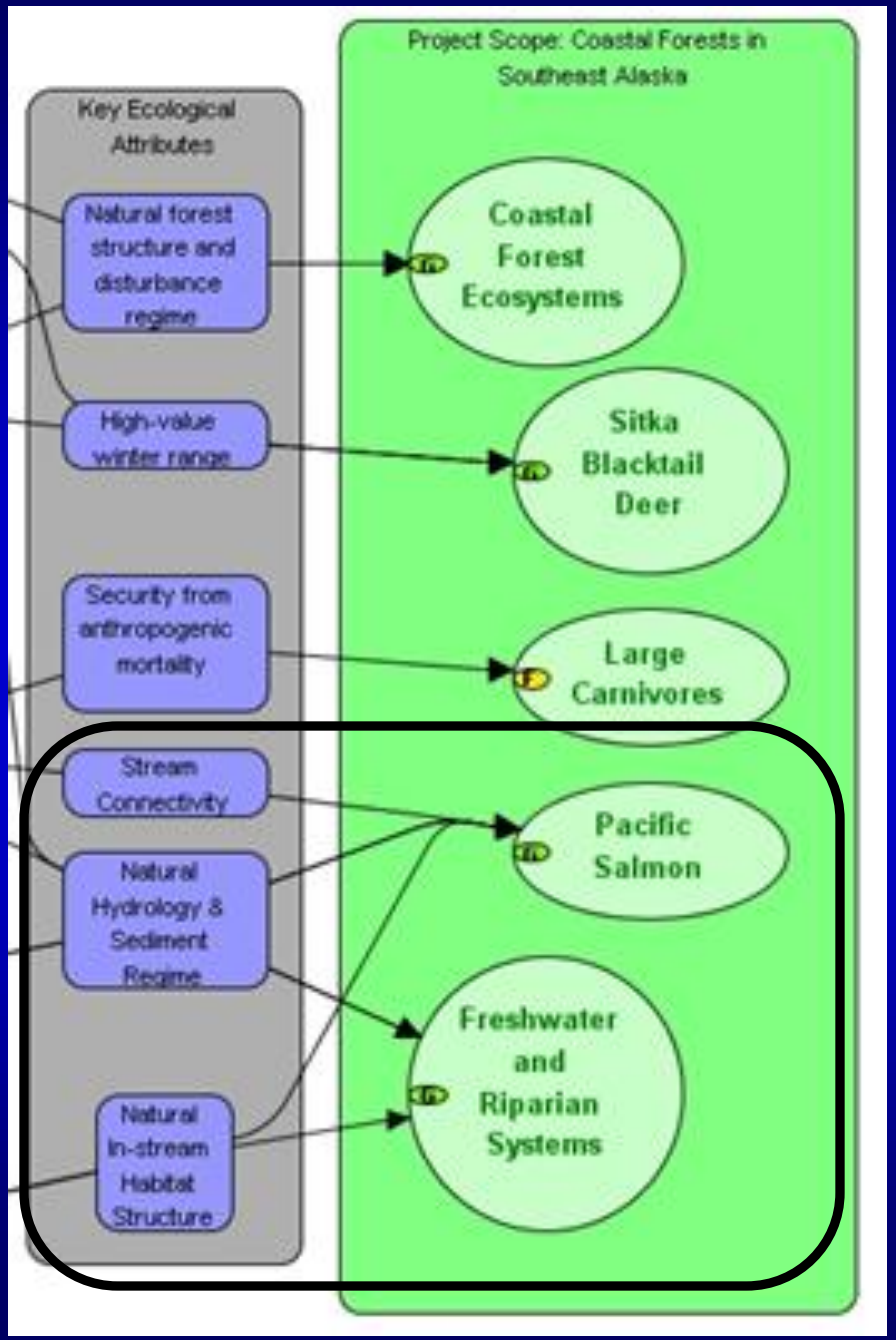



Sources of Stress
Risks to key ecological attributes associated with large-scale mining
Ecological Attributes
Physical and biological functions necessary to maintain viability of each salmon life stage
Life History Requirements
Life stages representing "links in a chain" are essential for successful conservation of salmon
Instream flow
Gravel quality
Water temperature and Dissolved oxygen
Groundwater inflow
Instream habitat (depth, cover, substrate)
Water quality (pH, turbidity, metals)
Aquatic insects
Riparian vegetation
Connectivity
Eggs (embryonic development)
Alevin (pre-emergence)
Fry (emergence)
Parr (freshwater rearing)
Smolt (out migration)
Spawning Adult (return and spawning)


Sources of Stress
Risks to key ecological attributes associated with large-scale mining
Ecological Attributes
Physical and biological functions necessary to maintain viability of each salmon life stage
Life History Requirements
Life stages representing "links in a chain" are essential for successful conservation of salmon
Instream flow
Gravel quality
Water temperature and Dissolved oxygen
Groundwater inflow
Instream habitat (depth, cover, substrate)
Water quality (pH, turbidity, metals)
Aquatic insects
Riparian vegetation
Connectivity
Eggs (embryonic development)
Alevin (pre-emergence)
Fry (emergence)
Parr (freshwater rearing)
Smolt (out migration)
Spawning Adult (return and spawning)


Sources of Stress
Risks to key ecological attributes associated with large-scale mining
Ecological Attributes
Physical and biological functions necessary to maintain viability of each salmon life stage
Life History Requirements
Life stages representing "links in a chain" are essential for successful conservation of salmon
Flow
Water Quality
Connectivity
Dewatering / Loss of instream flow
Large-scale Pollution Events
Acid Mine Drainage
Chemical Spills
Pipeline Spills
Fugitive Dust
Road Construction
Instream flow
Gravel quality
Water temperature and Dissolved oxygen
Groundwater inflow
Instream habitat (depth, cover, substrate)
Water quality (pH, turbidity, metals)
Aquatic insects
Riparian vegetation
Connectivity
Eggs (embryonic development)
Alevin (pre-emergence)
Fry (emergence)
Parr (freshwater rearing)
Smolt (out migration)
Spawning Adult (return and spawning)


Sources of Stress
Risks to key ecological attributes associated with large-scale mining
Ecological Attributes
Physical and biological functions necessary to maintain viability of each salmon life stage
Life History Requirements
Life stages representing "links in a chain" are essential for successful conservation of salmon
Instream flow
Gravel quality
Water temperature and Dissolved oxygen
Groundwater inflow
Instream habitat (depth, cover, substrate)
Water quality (pH, turbidity, metals)
Aquatic insects
Riparian vegetation
Connectivity
Eggs (embryonic development)
Alevin (pre-emergence)
Fry (emergence)
Parr (freshwater rearing)
Smolt (out migration)
Spawning Adult (return and spawning)

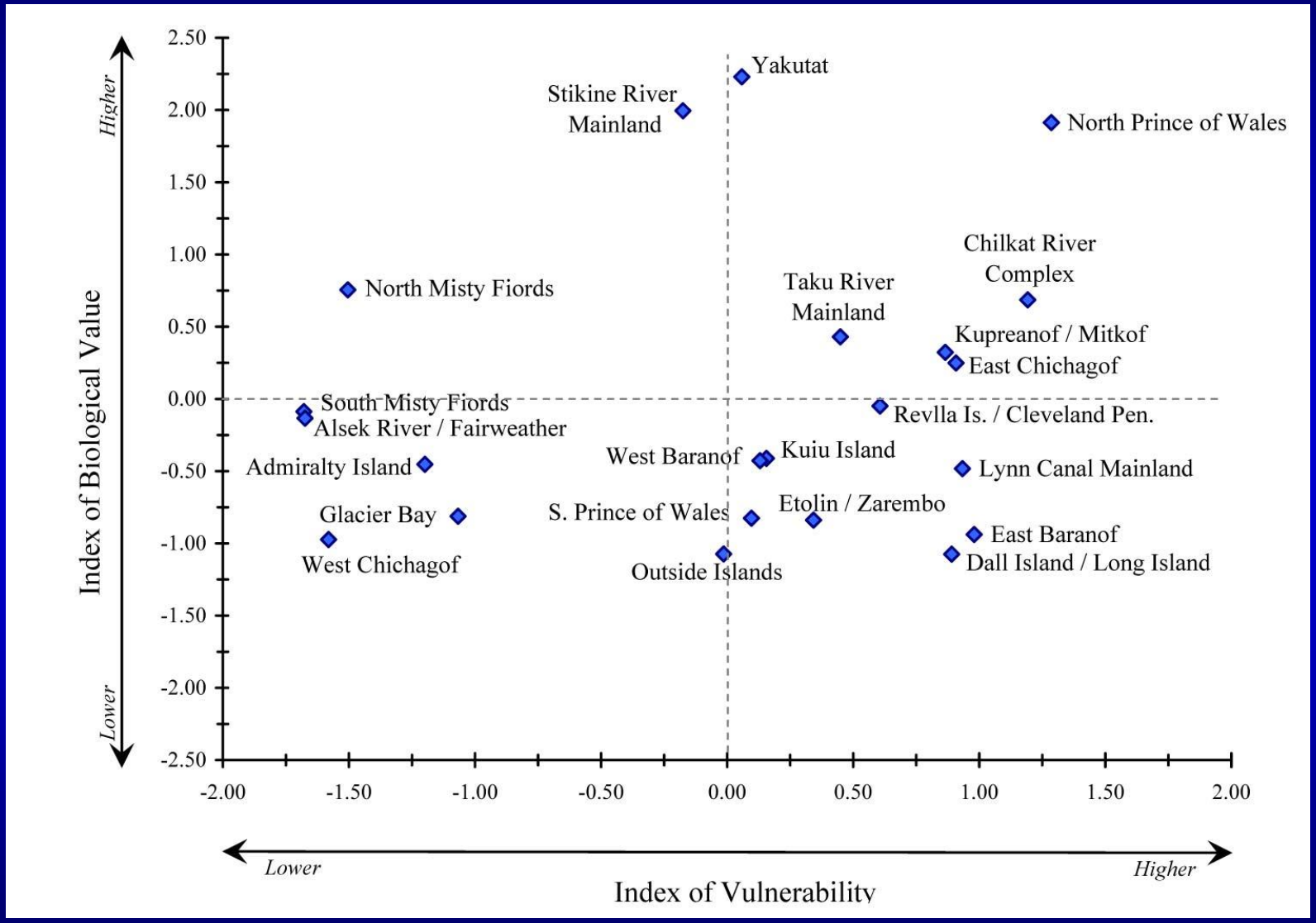

Project Scope: Coastal Forests in Southeast Alaska
Key Ecological Attributes
Natural forest structure and disturbance regime
High-value winter range
Security from anthropogenic mortality
Stream Connectivity
Natural Hydrology & Sediment Regime
Natural In-stream Habitat Structure
Coastal Forest Ecosystems
Sitka Blacktail Deer
Large Carnivores
Pacific Salmon
Freshwater and Riparian Systems

Conceptual Model Break-Out Session

For your project site:

- Identify major factors affecting targets
- Build an “initial conceptual model”

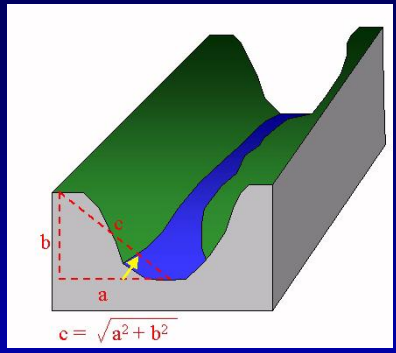
Salmon Values and Riparian Condition * Protected Status among Biogeographic Provinces



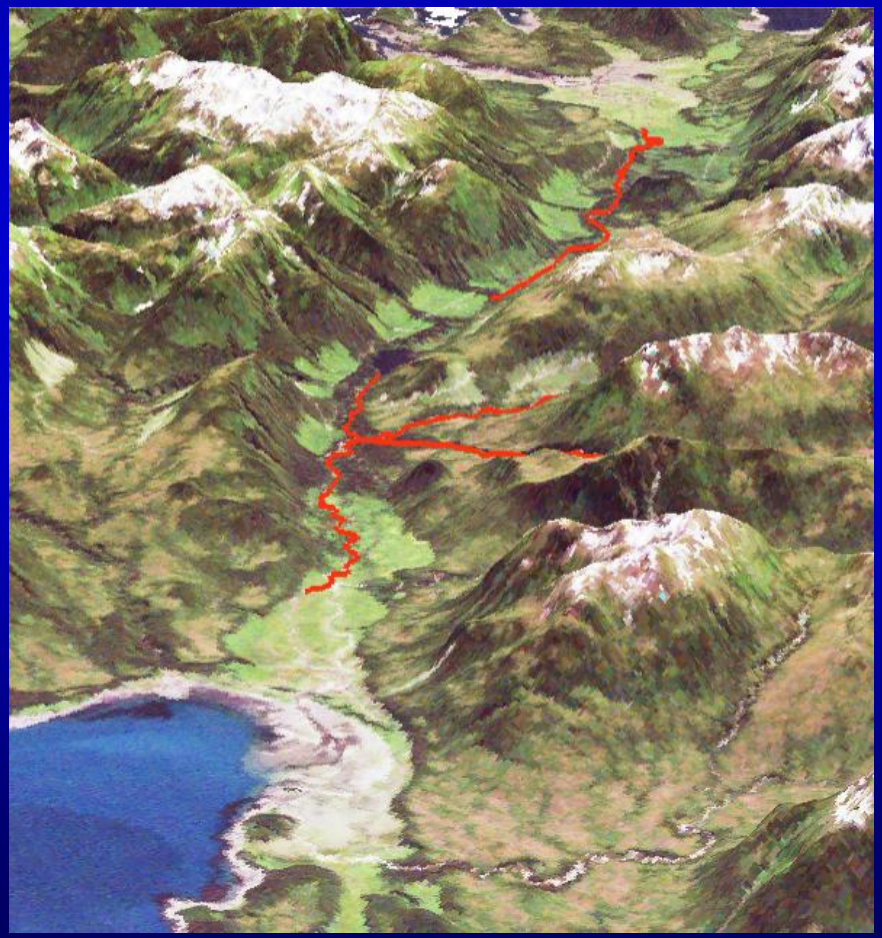
Index of Vulnerability = (% of original value intact) * (% of current value in conservation status)

Anadromous Floodplain Model

A DEM-based floodplain model was used to estimate total area associated with mapped anadromous streams – we called this the “anadromous floodplain”



ADF&G Database



Floodplain Model