

Part 1. Planning Pacific Salmon and Steelhead Reintroductions Aimed at Long-Term Viability and Recovery

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ARTICLE

Planning Pacific Salmon and Steelhead Reintroductions Aimed at Long-Term Viability and Recovery

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Abstract

Local extirpations of Pacific salmon *Oncorhynchus* spp. and steelhead *O. mykiss*, often due to dams and other stream barriers, are common throughout the western United States. Reestablishing salmonid populations in areas they historically occupied has substantial potential to assist conservation efforts, but best practices for reintroduction are not well established. In this paper, we present a framework for planning reintroductions designed to promote the recovery of salmonids listed under the Endangered Species Act. Before implementing a plan, managers should first describe the benefits, risks, and constraints of a proposed reintroduction. We define benefits as specific biological improvements towards recovery objectives. Risks are the potential negative outcomes of reintroductions that could worsen conservation status rather than improve it. Constraints are biological factors that will determine whether the reintroduction successfully establishes a self-sustaining population. We provide guidance for selecting a recolonization

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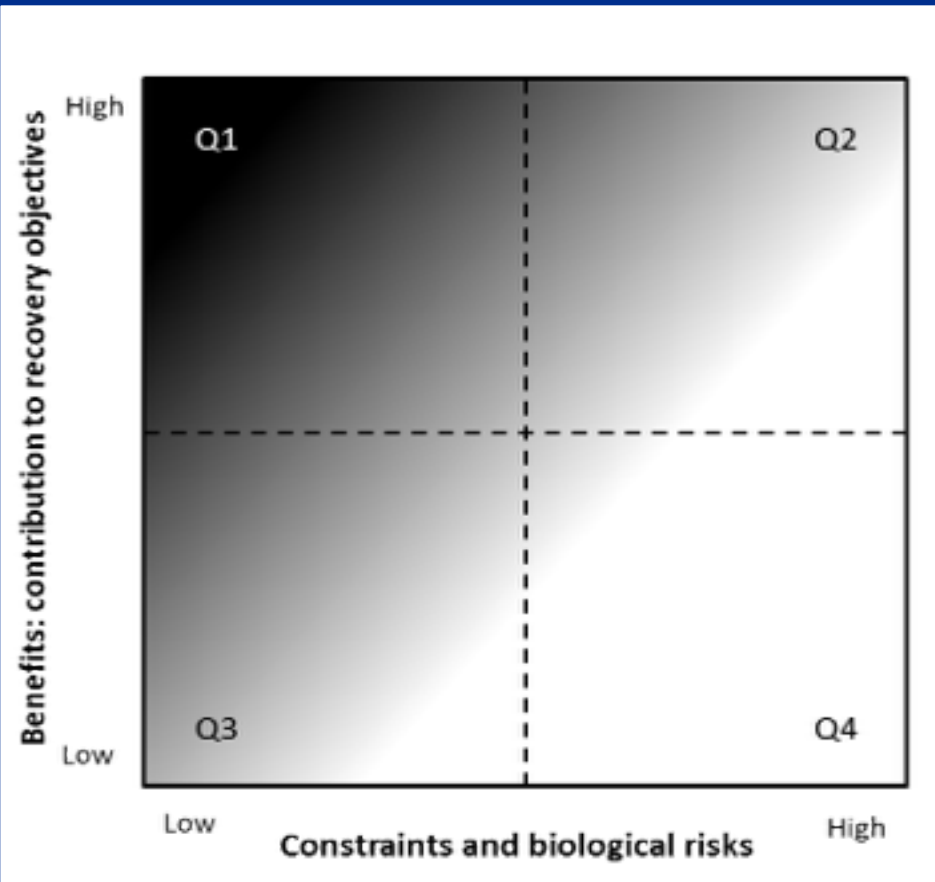
Purpose

- Framework for planning reintroductions designed to promote recovery.



Planning Concepts to Consider:

- Benefits – Biol. improvements towards recovery
- Risks – Potential negative outcomes for existing pops
- Constraints – Biol. factors that will challenge and ultimately determine success



Major Reintroduction Risks

- Evolutionary
- Demographic
- Ecological
- Disease

Constraints

- Barriers
- Habitat quality
- Migratory and ocean survival
- Harvest
- Species interactions
- Changing environment

Recolonization strategies

- Natural colonization
- Transplanting (adult spawners)
- Hatchery releases (of juveniles)

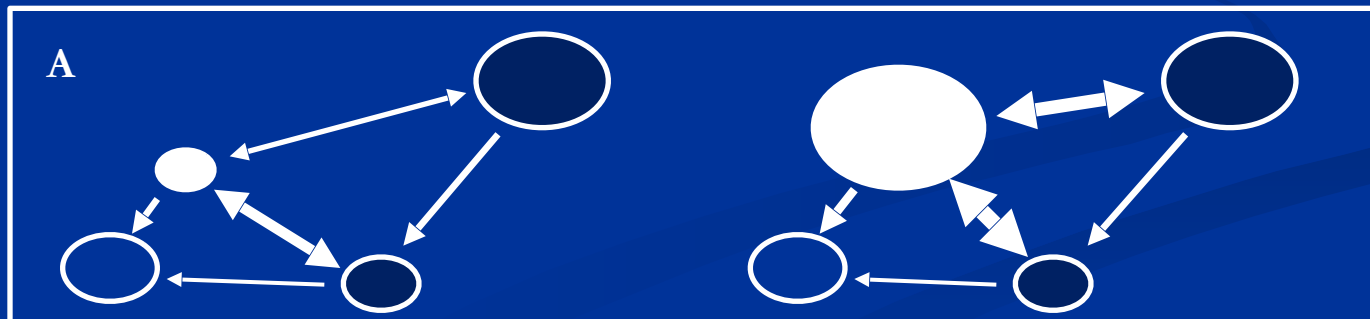


Source Population(s)

- Can the source afford reductions?
- Post reintroduction meta-population dynamics
 - Effects of reintro strays on downstream populations
 - Effects of losing natural spawners (pioneers into the new habitat)

Before reintroduction

After reintroduction



Conclusions

- Framework focused on ESA but works whenever conservation is an objective.
- Monitoring is critical for determining success.
- Long-term strategy



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