Restoration and Monitoring from a Listed Species Recovery Perspective

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NOAA Responsibilities

• Threatened and Endangered Species
  • Prevent extinction of NOAA trust resources
  • Recover listed species

• Magunson-Stevens Act
  • Rebuild overfished stocks
  • Ensure a safe and sustainable supply of seafood

• Essential Fish Habitat
  • Maintain habitat for NOAA Trust Resources
  • Restore Essential Fish Habitat
Salmon and Steelhead Recovery Plans

- Three species of listed salmonids
  - Coho salmon
  - Chinook Salmon
  - Steelhead

Recovery Plans
Community-based Restoration Program
Monitoring Evolution

- Restoration Site
- Project Reach
- Target Species Population

Southern Oregon Northern California Coho Salmon ESU
Monitoring for Recovery

How are we doing?

• At what scale do we make a difference in the population?
• Where are we making a difference?
• How much more restoration is needed to meet recovery targets?

How can we do better?
Monitoring for Recovery: Methods

- Winter Adult Spawner surveys
- Summer Juvenile Surveys
- Habitat Surveys
  - Spawning Habitat
    - Substrate characterization
    - Spawning sites
  - Rearing habitat
    - In-stream Flow
    - In-stream cover (Large wood, etc.)

Coho salmon redd during winter spawner survey
Monitoring for Recovery: Logic

- Delisting target (fully recovered) = NOAA’s goal
- Total miles of high Intrinsic Potential (IP) habitat in population area
- Number of fish per mile in restored reach
  - Estimate based on monitoring results
  - Assumption: all high IP habitat equal value

Extrapolate Project contribution to population recovery
Ryan Creek Barrier Removal: Targets

- Middle Mainstem Eel River Population
- 144 miles of high IP habitat in population

Recovery target: 6300 spawners

= 43 spawners per mile
Ryan Creek Barrier Removal: Results

• 41 coho salmon redds (82 spawners) in 1.5 miles of opened habitat
• Estimate: 54 spawners/mile in project reach
• Recovery Target: 43 spawners/mile

⇒ 123% of reach target
⇒ 1.3% of population recovery target
Glenbrook Gulch Dam Removal: Targets

- Albion River Population
- 59.2 miles of high IP habitat in population

Recovery target: 2300 spawners

= 38 spawners per mile
Glenbrook Gulch Dam Removal: Results

- 6 coho salmon redds in 1 mile of restored habitat
- Estimate: 12 spawners/mile in project reach
- Recovery Target: 38 spawners/mile

⇒ 32% of reach target
⇒ 0.5% of population recovery target
Essex Gulch Barrier Removal: Priority

- Barrier “complex”
  - County Road
  - State Highway
  - Private Road
- Estimated cost $2-4m
  \( \implies \) Low priority (#23)
- Fish immediately downstream
- 4.5 miles of habitat blocked
- Looked at:
  - Spawning habitat (lots)
  - Rearing habitat (lots)
  - Temperature and in-stream flow (excellent year round)
Essex Gulch Barrier Removal: Targets

- Lower Mad River Population
- 85 miles of high IP habitat in population

Recovery target: 540 spawners

= 6 spawners per mile
Essex Gulch Barrier Removal: Results

• Potential for 170 spawners in 4.5 miles of blocked habitat (based on habitat surveys)
• Estimate: 38 spawners/mile in project reach
• Recovery Target: 6 spawners/mile

⇒ 633% of reach target
⇒ 31% of population recovery target
⇒ Barrier moved to #3 priority in Northern CA
Monitoring in Species Recovery Context

Lessons Learned:

• High value of viewing monitoring data in context of recovery
  • Informs us about population benefits of past restoration
  • Informs us how future projects could fit into recovery
  • Helps us get perspective on how far we have to go

Improved Prioritization
Thank You
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- California Conservation Corps