Jun 21st, 3:30 PM - 3:45 PM

Case Studies III: Salmon Superhighway: Strategic Fish Passage Barrier Prioritization and Community Engagement Tillamook-Nestucca Subbasin, Oregon

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SALMON SUPERHIGHWAY

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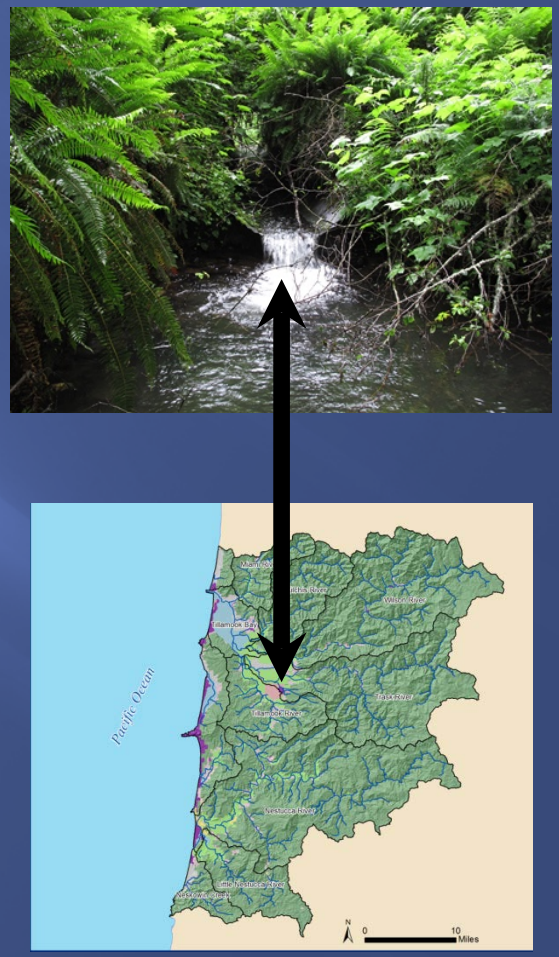
Presentation Content

- Origin of the Salmon SuperHighway Partnership
- Its Unique Approach
- Monitoring
- Human Dimensions

Considering Scale while Planning Passage Projects

- Considerations at the:
  - Project Site Scale
  - Stream Reach Scale
  - Watershed Scale
  - Basin Scale
- Need to be problem-solving at multiple scales.
- Need for data exchange at multiple scales to inform decisions



Fish Passage Partnership Origin

- Program Managers from several agencies in the Pacific NW convened to develop a demo project to:
  - Prioritize passage at multiple scales
  - Concentrate resources
  - Develop and Use passage barrier database to prioritize and present portfolio of opportunities.

Selection of First Demo Drainage

- Ecotrust assisted in prioritizing all 4th field Subbasins in Oregon
- Tillamook-Nestucca selected due to:
  - High quality habitat
  - Fish species diversity, 6 species in 6 rivers
  - Land ownership mix between partners
  - Completed inventories
  - Active restoration partner community

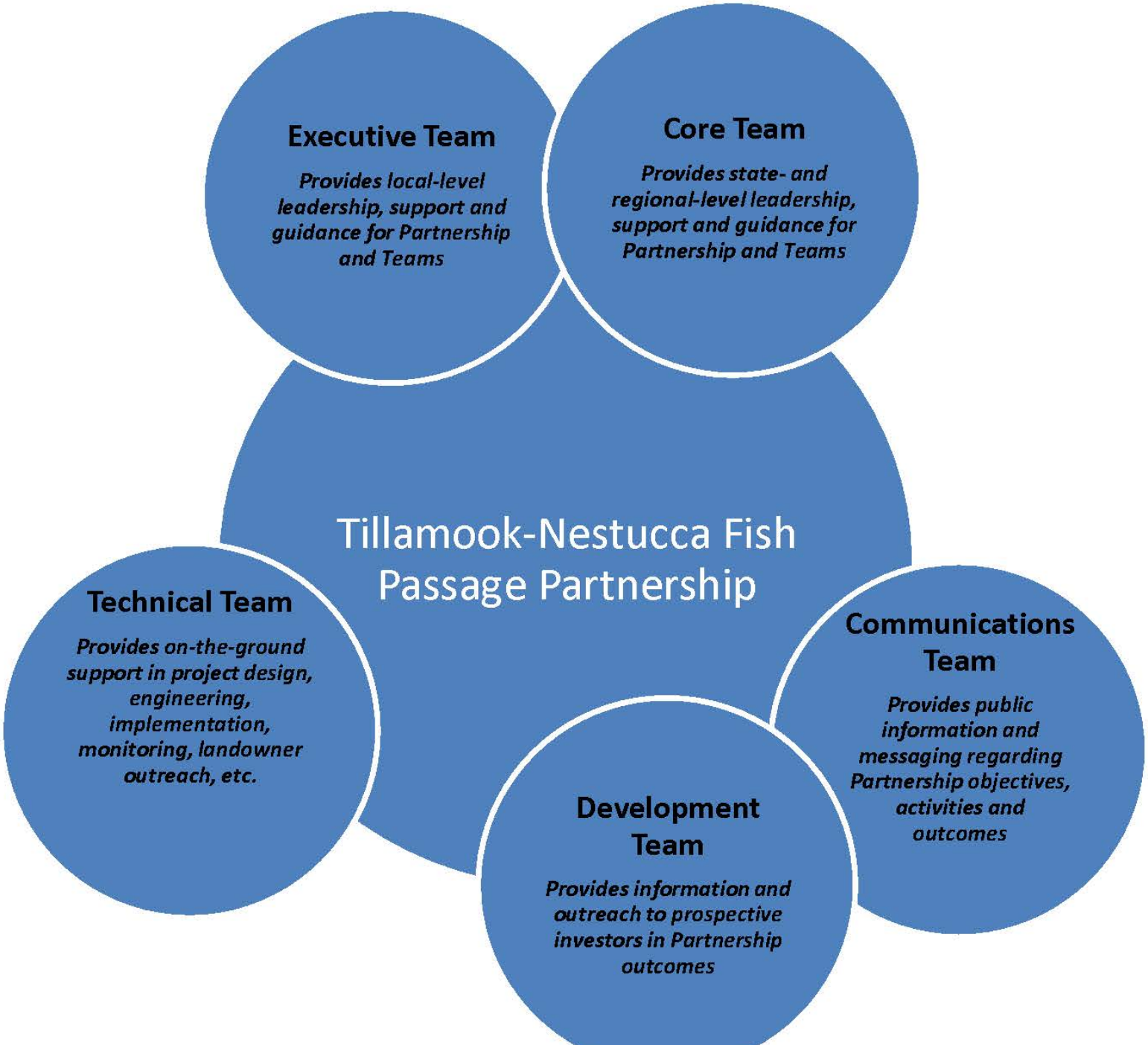
coho salmon
Chinook salmon
chum salmon
winter steelhead
Pacific lamprey
coastal cutthroat trout

Tillamook-Nestucca Subbasin

- 40 miles from Portland
- Consists of 2 major drainages with large coastal estuaries
- Forestry is the dominant land use on state, federal, and private lands.
- Lowlands converted from floodplain forests to diked agricultural lands (dairies).
- Important commercial and sport fisheries

Salmon SuperHighway Partners

- Forest Service
- BLM
- Tillamook Estuary Partnership
- Nestucca-Neskowin Watershed Council
- Tillamook Bay Watershed Council
- Oregon Department of Forestry
- Oregon Department of Fish and Wildlife
- Oregon Watershed Enhancement Board
- Natural Resources Conservation Service
- NOAA Fisheries
- Trout Unlimited
- U.S. Fish and Wildlife Service
- County Roads Dept.
- City and County Leadership


Executive Team
Provides local-level leadership, support and guidance for Partnership and Teams
Core Team
Provides state- and regional-level leadership, support and guidance for Partnership and Teams
Tillamook-Nestucca Fish Passage Partnership
Technical Team
Provides on-the-ground support in project design, engineering, implementation, monitoring, landowner outreach, etc.
Communications Team
Provides public information and messaging regarding Partnership objectives, activities and outcomes
Development Team
Provides information and outreach to prospective investors in Partnership outcomes

Assessing and Organizing Migration Barrier Data

- Road Crossing, Dam, and Tide Gates
- Compiled local existing data into overall database:
  - TEP Culvert Surveys
  - BLM and USFS Surveys
  - Oregon Fish Passage Barrier Database
  - Oregon Fish Habitat Distribution Layers
  - Local biologist knowledge

Assessing and Organizing Migration Barrier Data

- Project cost estimated for each barrier based on previous projects
- Key species benefited by passage project determined with:
  - ODF fish distribution layer
  - ODFW Coho survey data.

Partnership Goal

- Determine where on the landscape fish passage restoration could make the most impact on fish populations.
- Optimize habitat gain per funding
- Develop a passage portfolio that sets priorities at a landscape scale, tying to measurable biological outcomes at the population level.

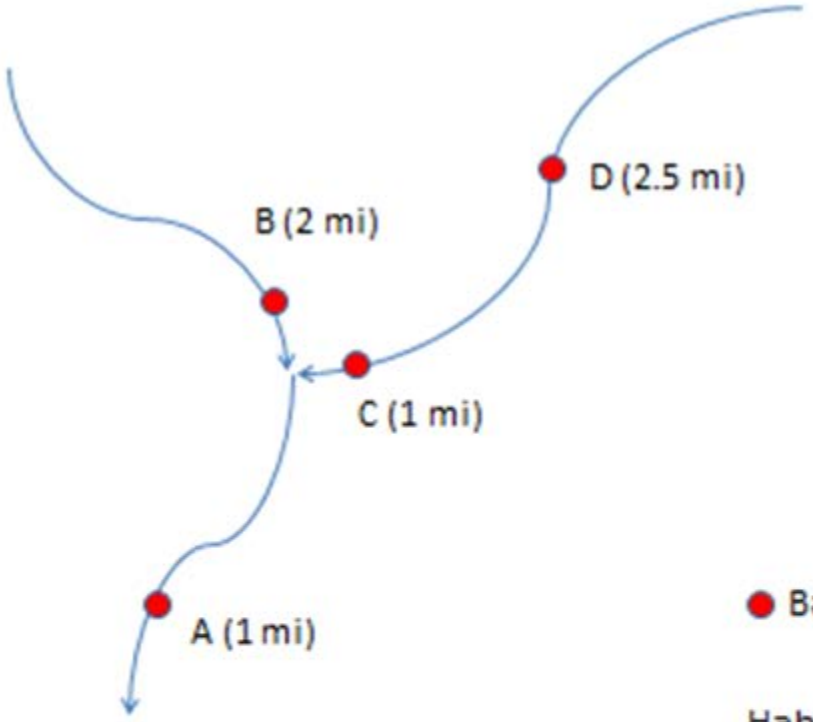
Use of APASS Model

- Provides a guide to where and in what order fish passage restoration should take place.
  - O'Hanley and Tomberlin 2005
  - O'Hanley 2011
- Incorporates priorities set by local partners.
- Provides a way to quantify progress at the subbasin scale or individual watersheds.
- Allows us to incorporate species-specific, population-level distribution goals.

Key Decision Points and Assumptions

- **Treat all barriers as full barriers.**
- **Multiplier used to weight sites with benefits to multiple species.**
- **Used cost estimates by Culvert Working Group. Where unavailable, used cost analysis along with professional judgment for remaining barriers.**
- **Added 30% to estimated replacement cost for planning, design, permitting, administration, and monitoring for projects <$1 million. For projects >$1 million, we added 15% additional to cover these associated costs.**

Use of APASS Model



Barrier

Effective Network Distance Upstream

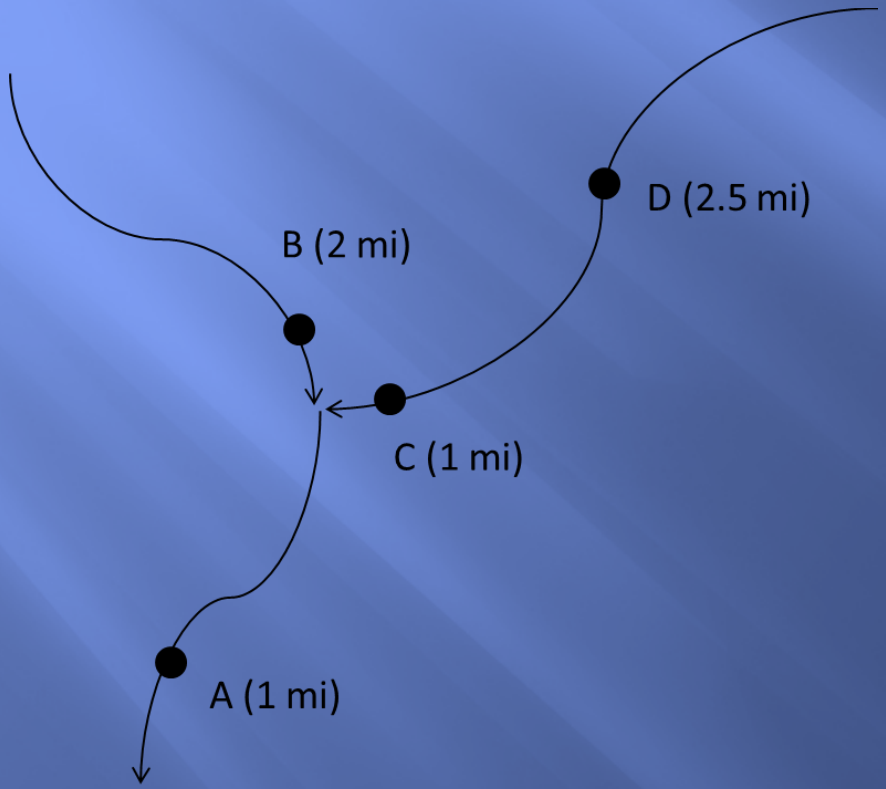
A: 1 mi
B: 2 mi
C: 1 mi
D: 2.5 mi

Habitat Generated by Removal

A = 1 mi
A + B = 3 mi
A + C = 2 mi
A + C + D = 4.5 mi
A + B + C = 4 mi
A + B + C + D = 6.5 mi
A + D: not considered because of C remains

Use of APASS Model

A: $100K, B: $50K, C: $75K, D: $100K



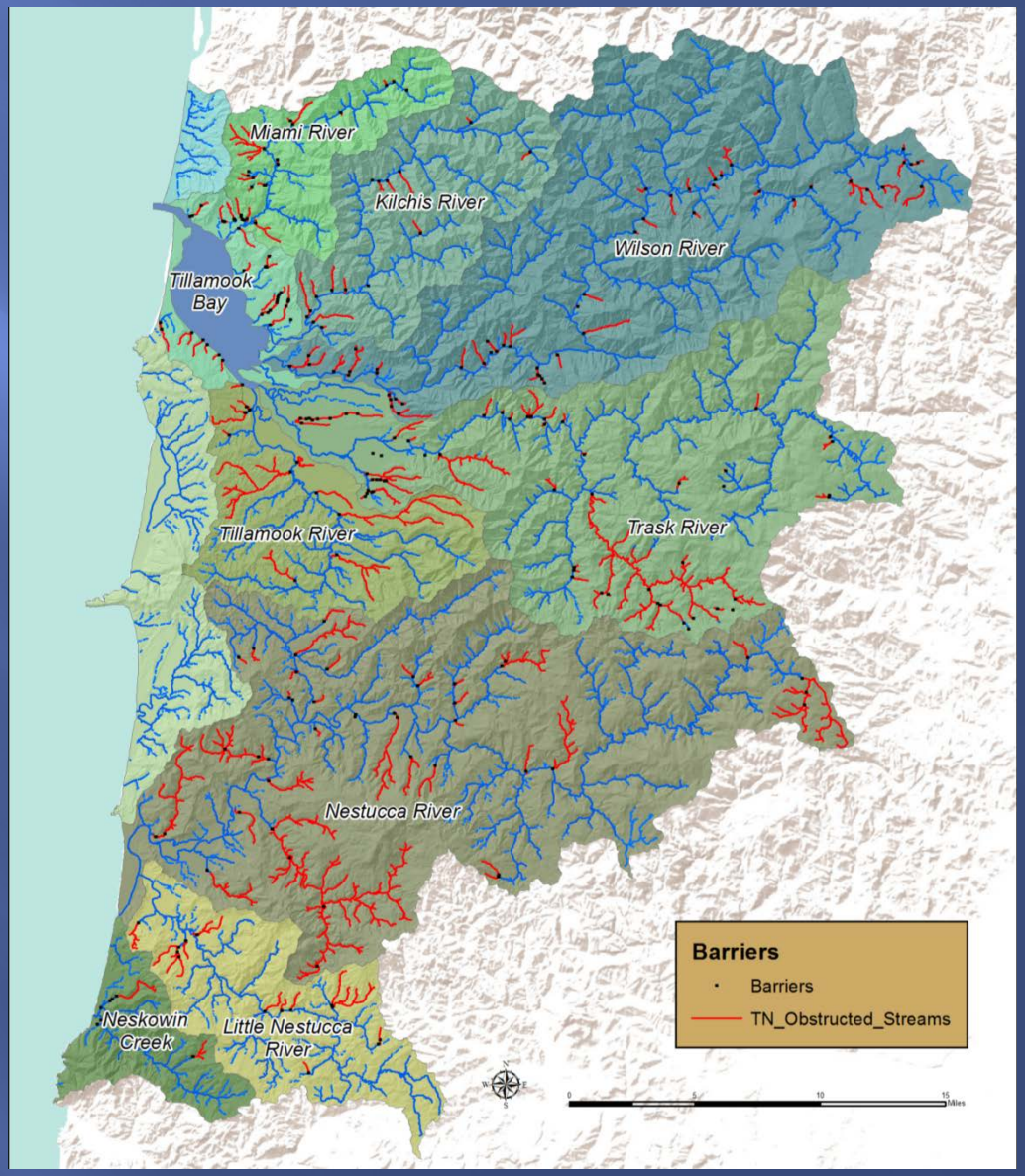
Budget	Barriers	Total Habitat (mi)
$200K	A+B	3.0
	A+C	2.0
	A+B+C	Can't afford
	A+C+D	Can't afford
$300K	A+B+C	4.0
	A+C+D	4.5
	A+B+C+D	Can't afford
$400K	A+B+C+D	6.5

Summary of Culvert Replacement Cost Assignments

Type	Crossing Size	Cost
Highway	Small	$1 million
	Medium	$2 million
	Large	$4 million
County Road	n/a	$350k
City Street	n/a	$250k
Private Drive	n/a	$160k
Private Farm Crossing	n/a	$40k
Forest Road	Small	$75k
	Medium	$150k
	Large	$300k

Results: Total Blocked Habitat

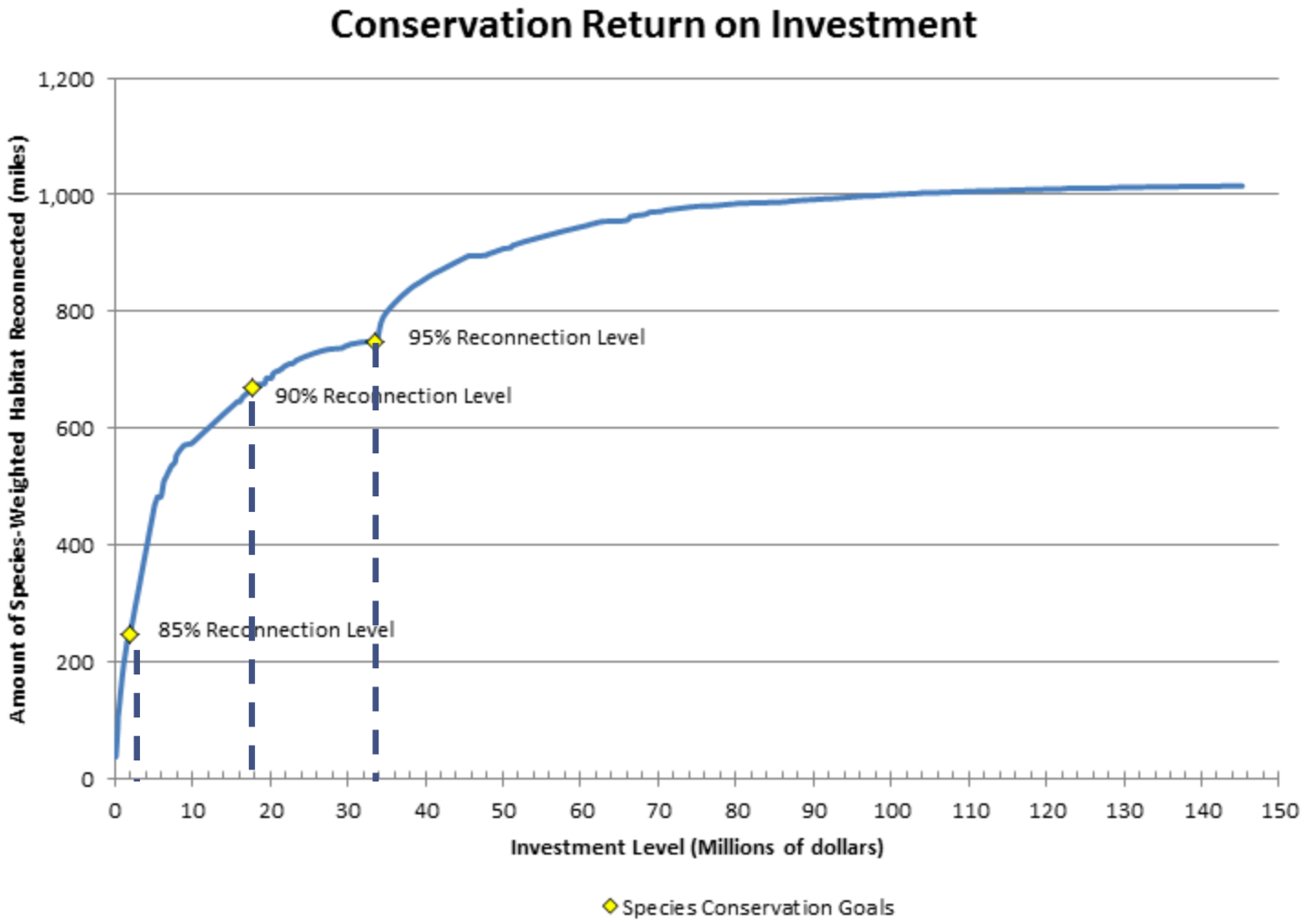
- 270 barriers
- Blocked stream reaches in red.
- Most barriers are on streams, not mainstem rivers.



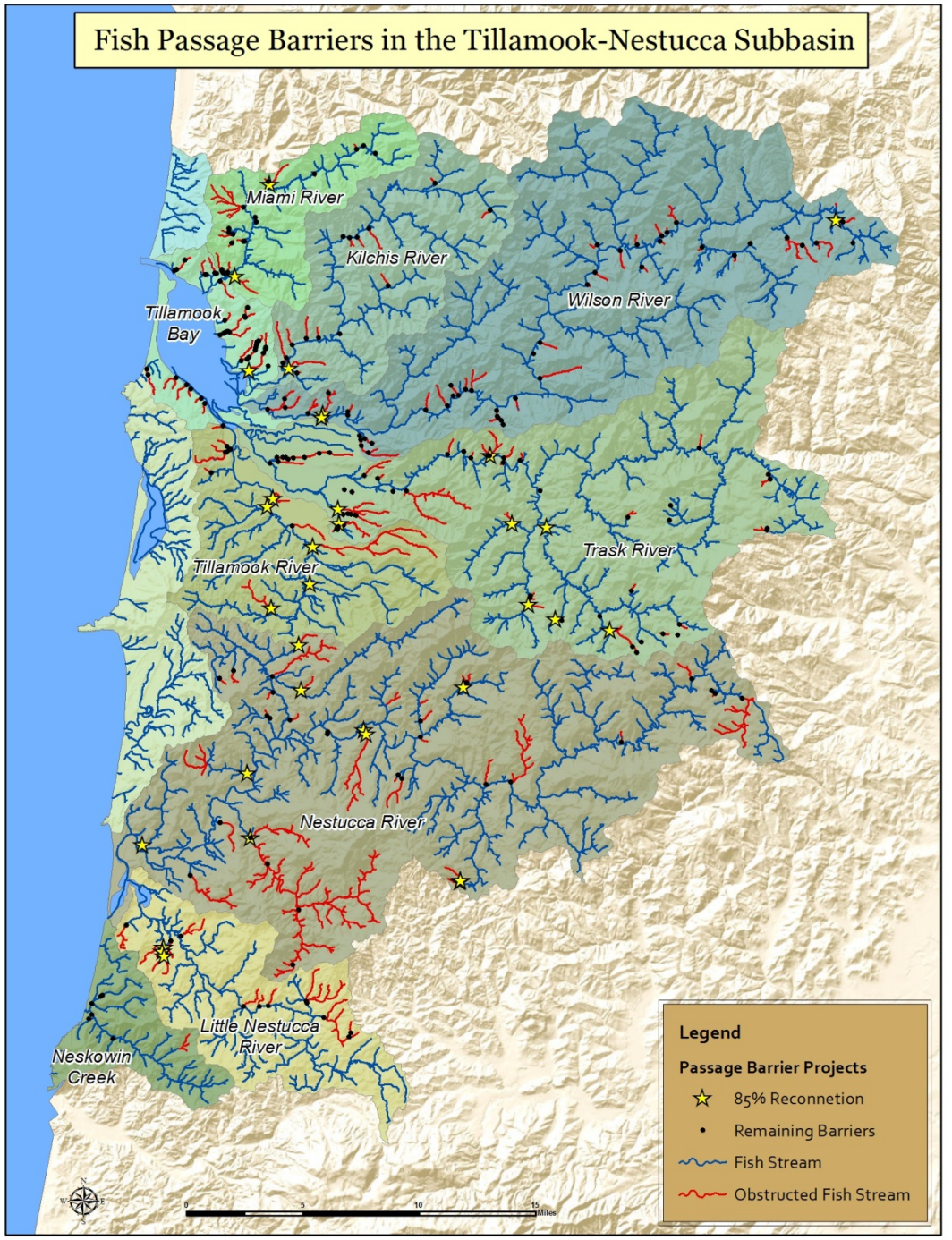
Linking Fish Passage Restoration to Species Population-level Goals

Viable Salmonid Population Components (McElhany et al. 2000)

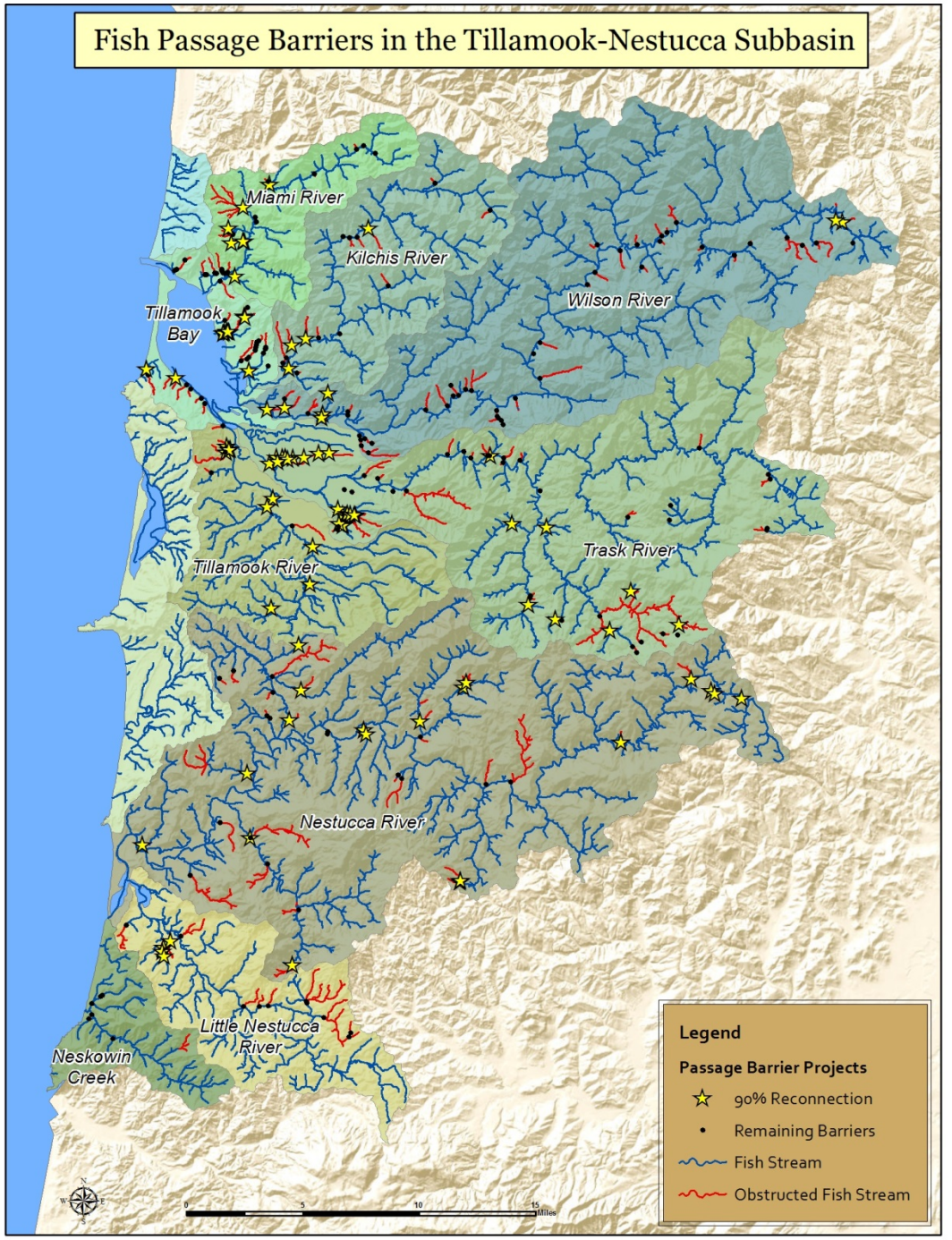
- Abundance (population size)
- Growth (population growth, lambda)
- **Distribution (spatial structure)**
- Diversity (genetic, life history)


Conservation Return on Investment
Amount of Species-Weighted Habitat Reconnected (miles)
1,200
1,000
800
600
400
200
0
95% Reconnection Level
90% Reconnection Level
85% Reconnection Level
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Investment Level (Millions of dollars)
Species Conservation Goals

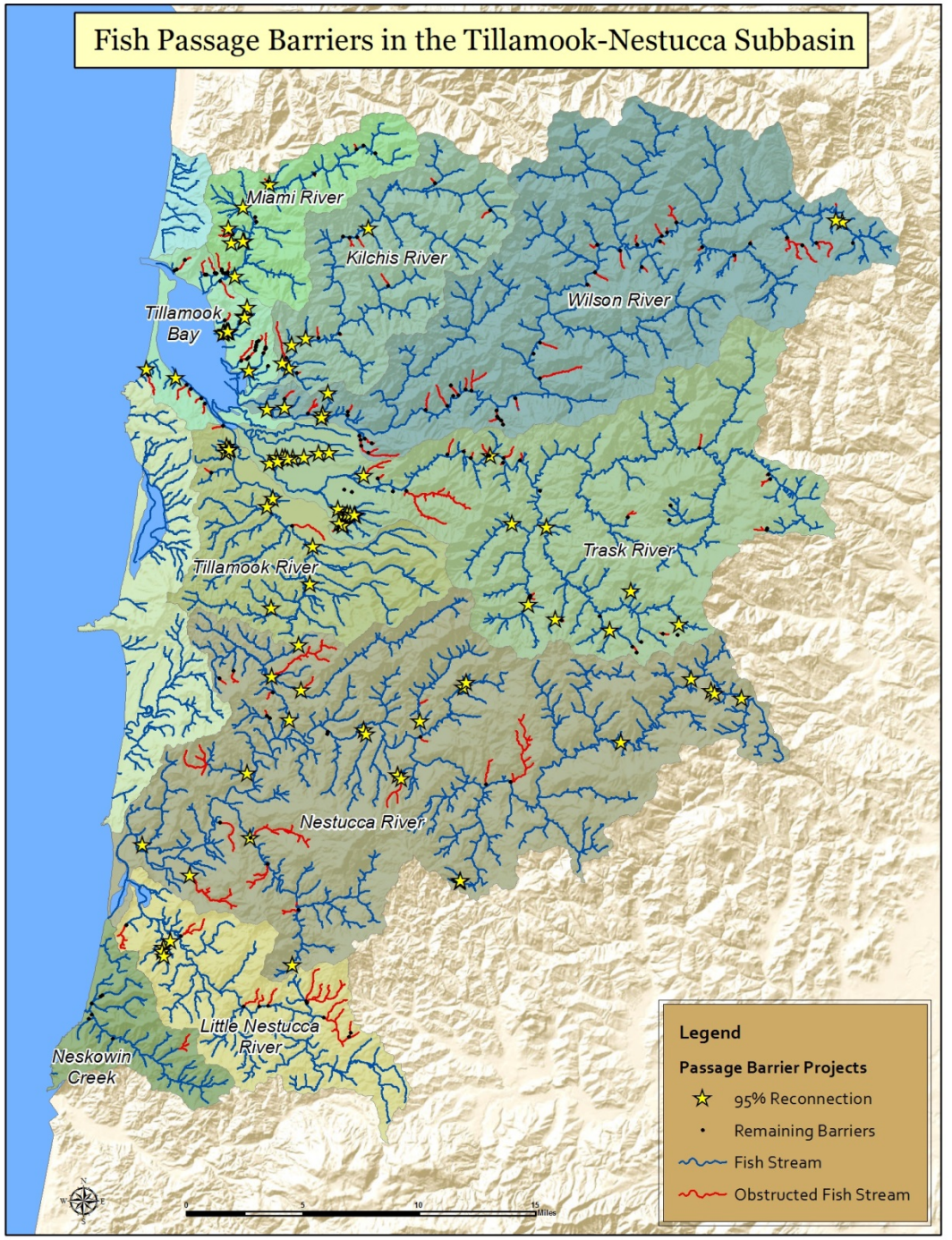
85% Species Conservation Goal



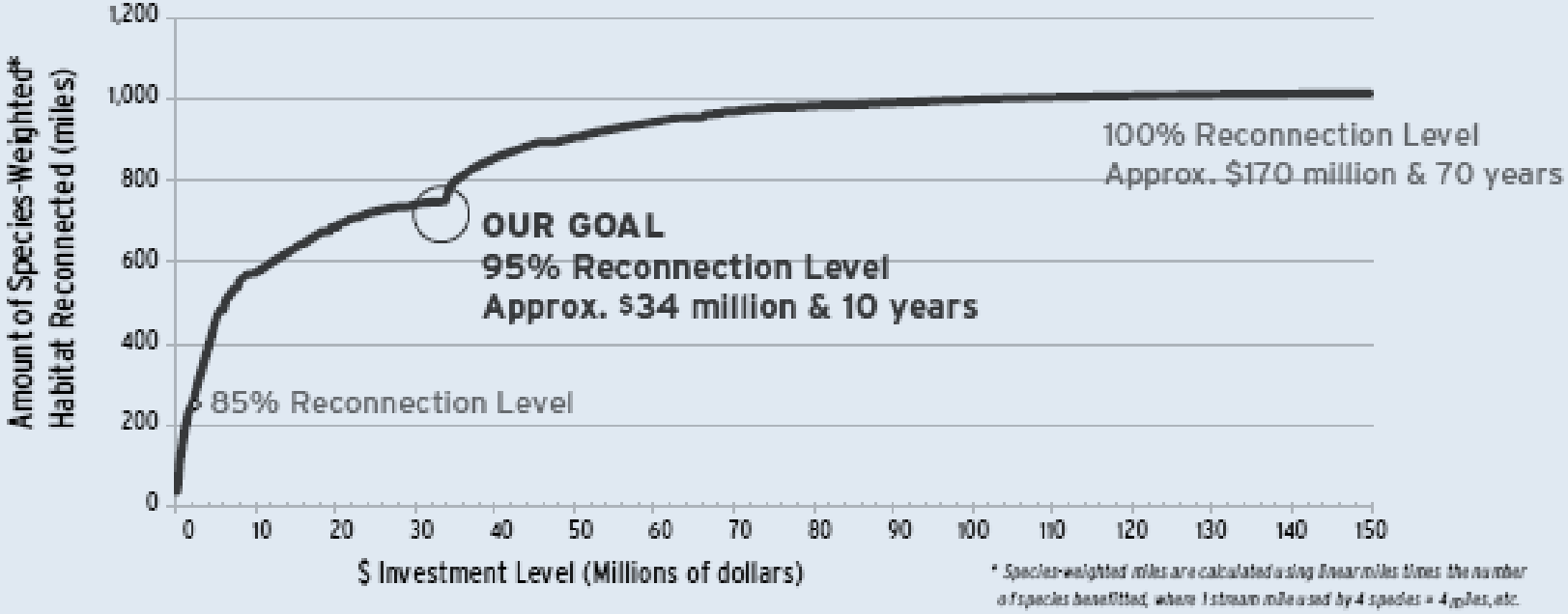
90% Species Conservation Goal



95% Species Conservation Goal

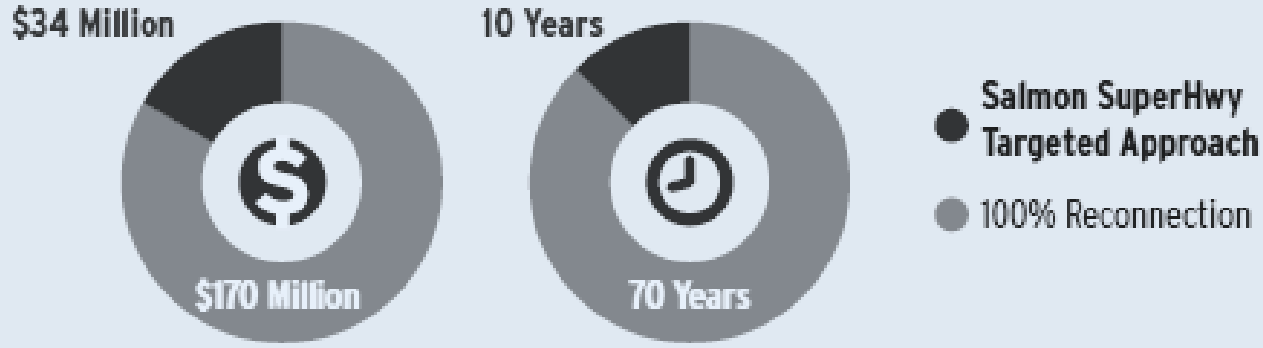


Conservation Return on Investment



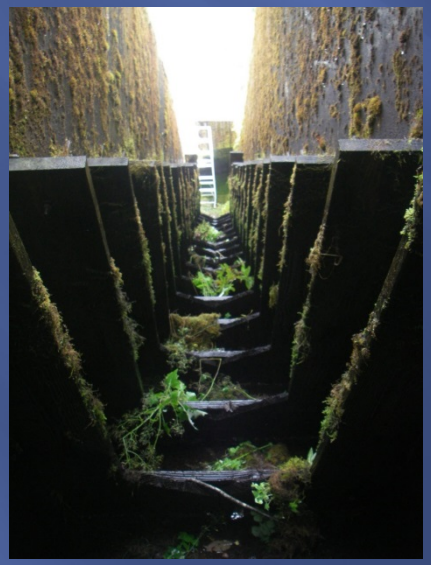
* Species-weighted miles are calculated using linear miles times the number of species benefitted, where 1 stream mile used by 4 species = 4 miles, etc.

95% vs. 100%



East Fork of South Fork Trask River Dam Removal in 2016

- Old diversion dam owned by ODFW for fish hatchery operations
- High priority for fish passage
- Originally slated for redesign, but removal deemed feasible for continued hatchery operations
- Project opens ~25 miles of historic habitat for coho, Chinook, winter steelhead, Pacific lamprey, and coastal cutthroat trout



Strong Monitoring Component

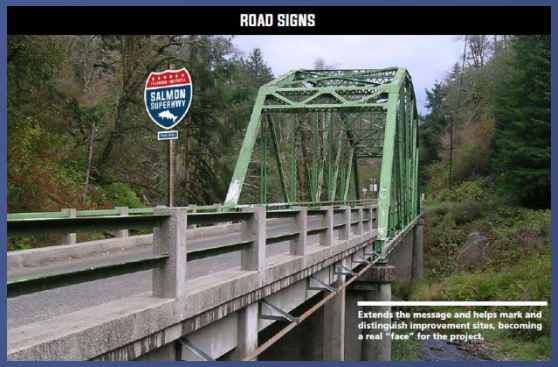
- Partnership monitoring plan includes Implementation, Effectiveness, and Validation components.
- Database used by partners to enter pre- and post-project effectiveness monitoring.
- Findings feed back to improve implementation
- Informs next demo partnership.

Human Dimension

- Additional investment in coordination between all levels of partnership
- Ownership from key players in community
- Using salmon to rally community to action
- Advanced fundraising capabilities
- Advanced marketing capabilities

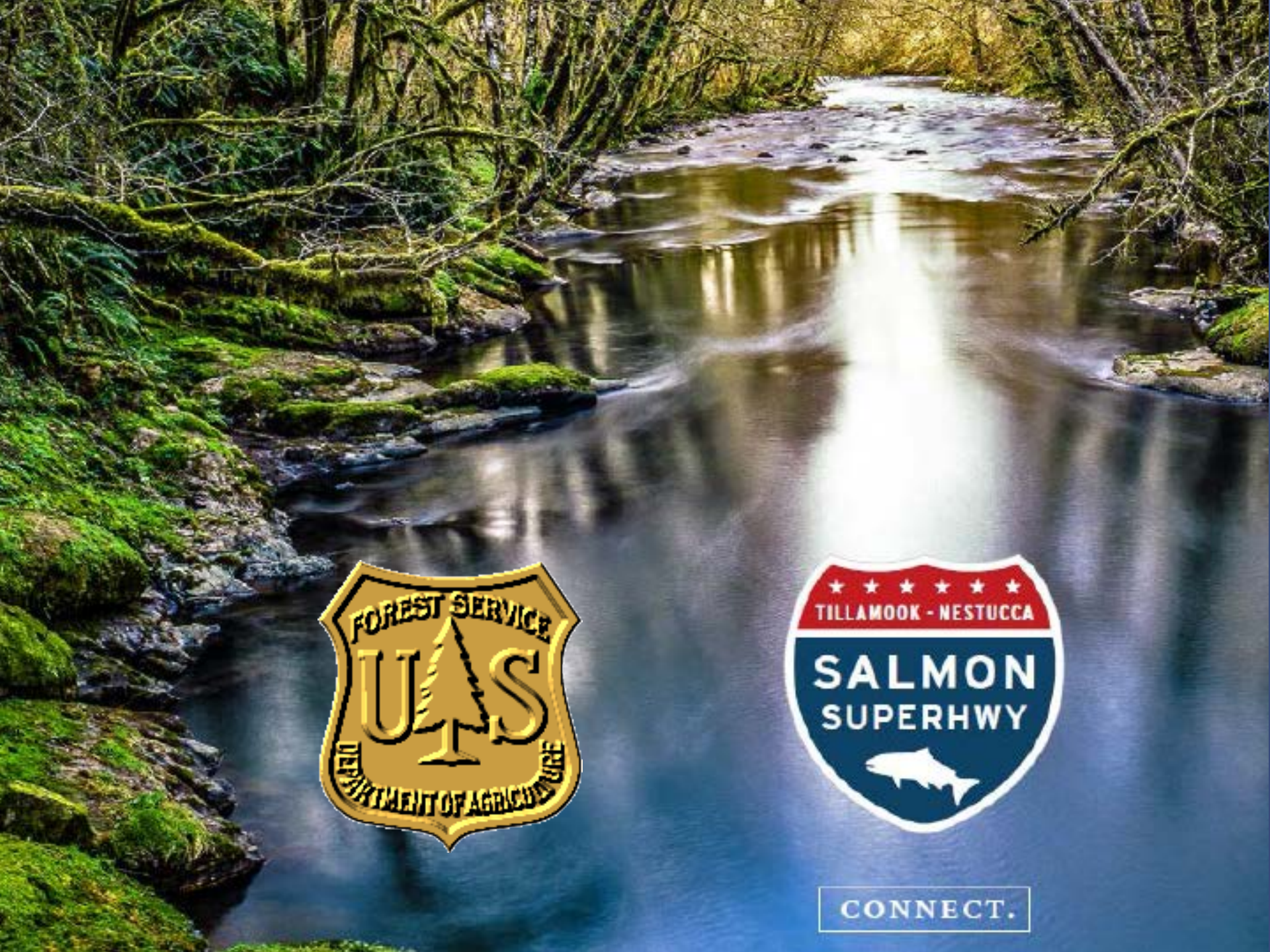
Advanced Marketing

- Branding and brand tenets
- Identity – photos, graphics, and slogans
- Merchandise
- Case statement
- Web presence



Conclusions

- **The Salmon SuperHighway Partnership is a unique approach to connecting fisheries resources to their historic habitat and local communities to their landscape.**
- **The approach includes essential components:**
  - **Data standardization, centralized management**
  - **Prioritization of projects using a portfolio approach**
  - **Supportive, interested, and capable community**
  - **Concentrated funding stream**
  - **Monitoring to facilitate its application elsewhere**
- **For more information: Salmonsuperhighway.org**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