

# Efforts to Prioritize Fish Passage Barrier Removal and Instream Flow Reservations in the Mat-Su Basin



## Mat-Su Salmon Symposium

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# Outline



- **Background - Partnership Objectives**
- **Instream Flow Reservation (2 slides)**
- **Fish Passage Restoration Prioritization**
  - **Look Back at Restoration Progress**
  - **Prioritization**
    - **Methods**
      - Identifying Salmon Barriers
      - Measuring Upstream Miles
      - Cost-benefit ratios
- **Summary**



# Background: Addressing Strategic Action Plan Objectives



## Conserving Salmon Habitat in the Mat-Su Basin



The Strategic Action Plan  
of the  
Mat-Su Basin Salmon Habitat Partnership  
2013 Update



## Objective 4.2: Fish Passage Restoration

**Strategic Action 4.2.2:** Develop and Implement Fish Passage Prioritization and Improvement Plan

## Objective 9.1: Instream Flow on Anadromous Waters

**Strategic Action 9.1.1:** Prioritize Anadromous Streams and Lakes

# Instream Water Right Reservation Plan for Mat-Su Basin



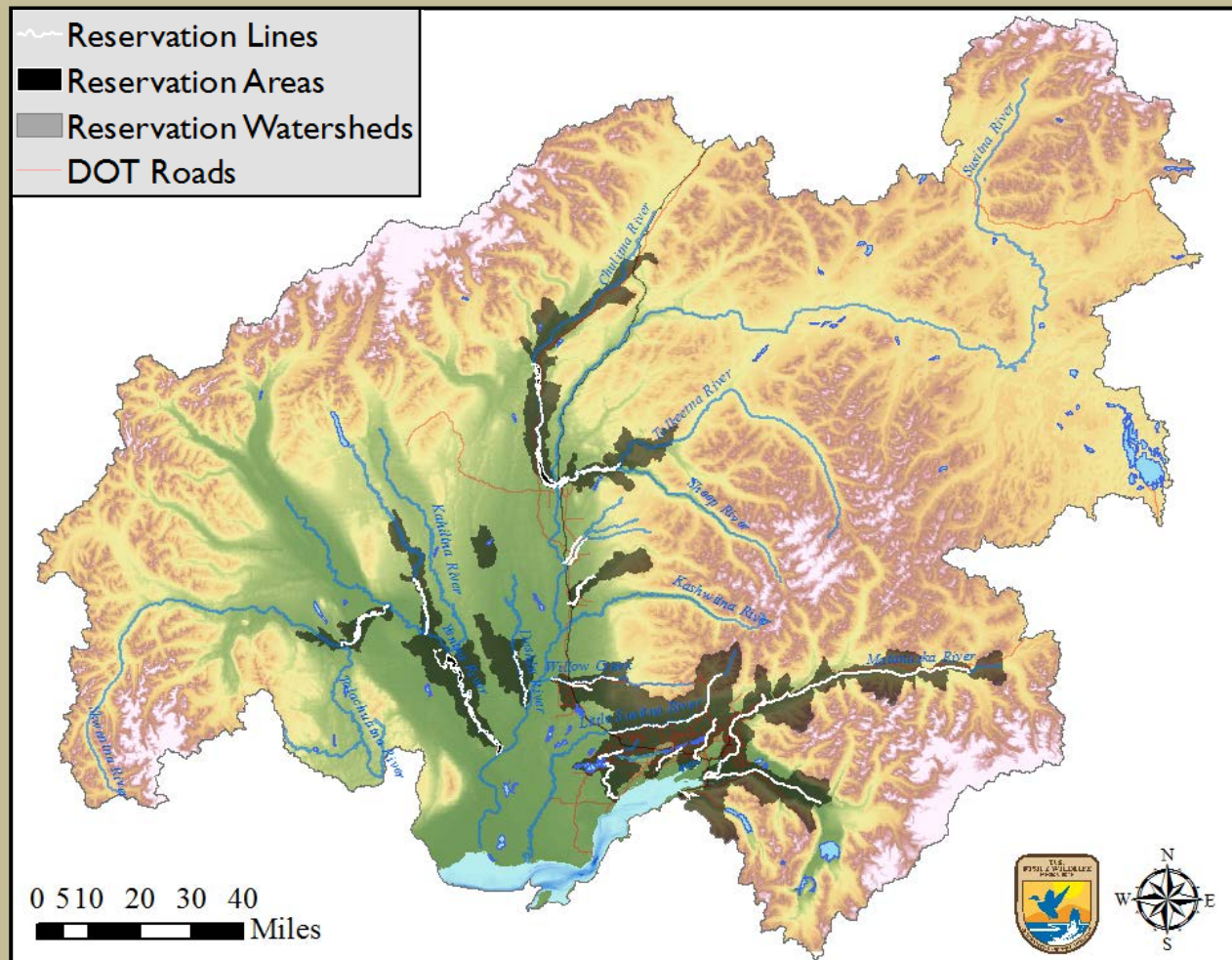
**Goal:** *To protect the stream flows that support salmon at all lifestages.*

## Background

- 5 years of gaging
- Ready for next round of priority streams
- Kashwitna River

## Currently:

- 26 Instream Flow Applied or Issued Reservation
- On 20 different Streams







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# Fish Passage Restoration Cost-Benefit Prioritization



U.S. Fish and Wildlife Service

## Fish Passage Restoration Cost – Benefit Prioritization for the Mat-Su Basin, Alaska

*Alaska Fisheries Technical Report Number #*



*How to get the most salmon habitat for our restoration dollars?*

## Cost-Benefit

**Cost** = Estimated Cost of Barrier Restoration

**Benefit** = Miles of Stream Opened



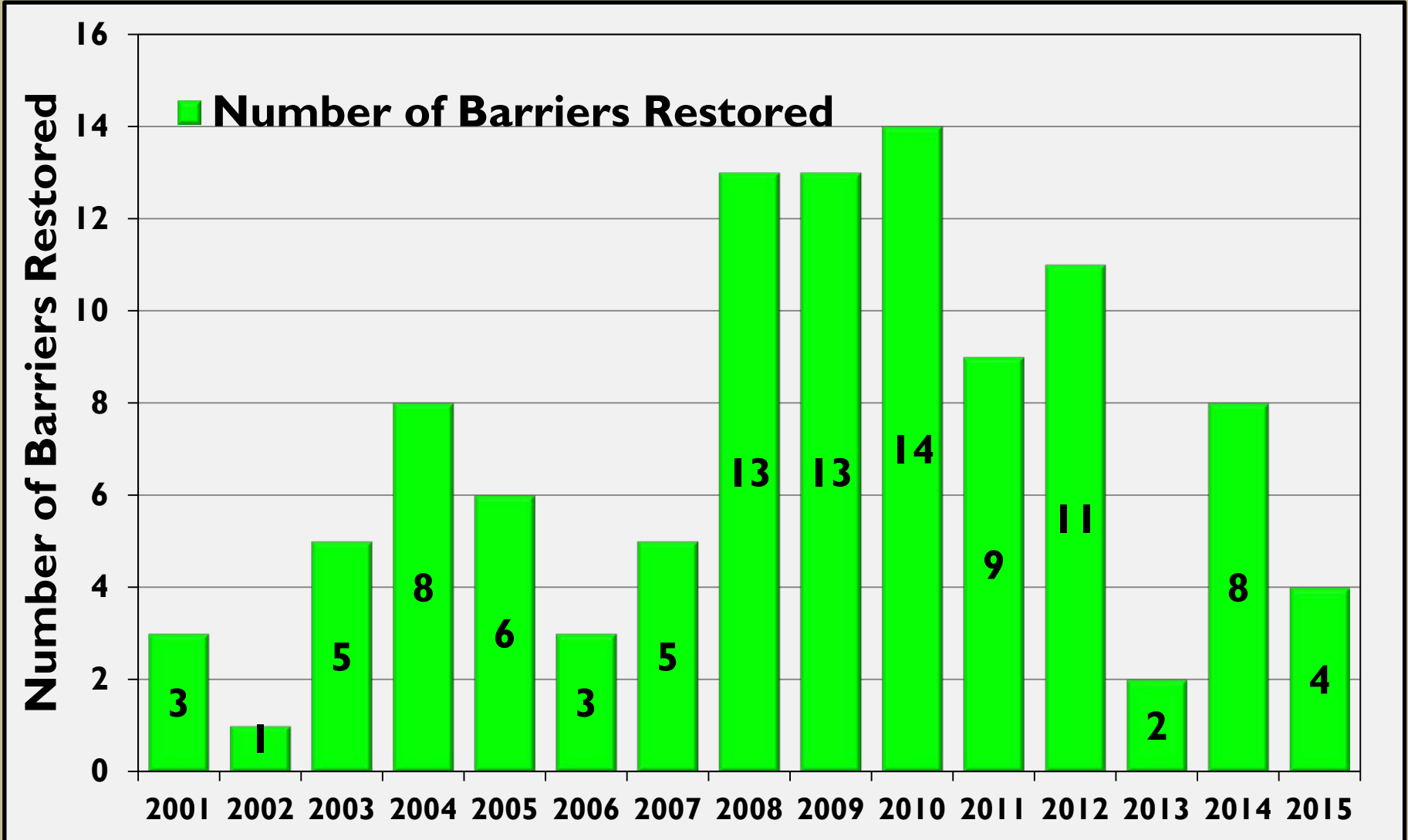
Anchorage Fish and Wildlife Field Office  
Anchorage, Alaska  
November, 2015

# Barriers Restored by Year 2000-2015



➤ **105** Barriers Restored

➤ **234** Miles Opened

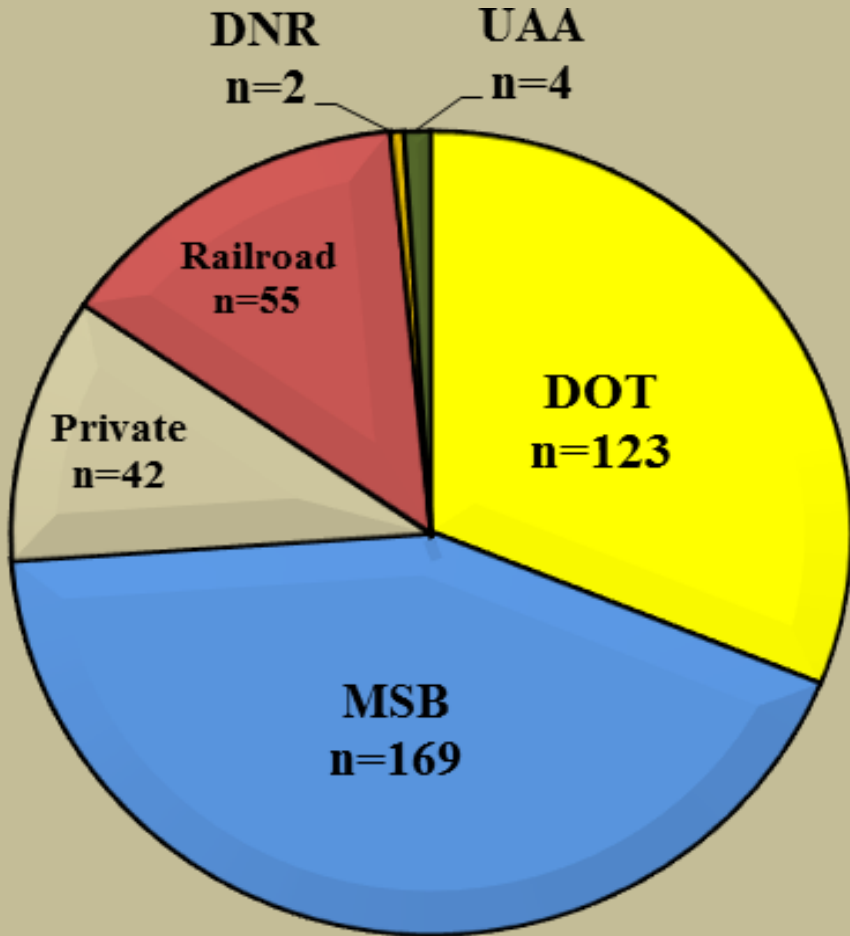




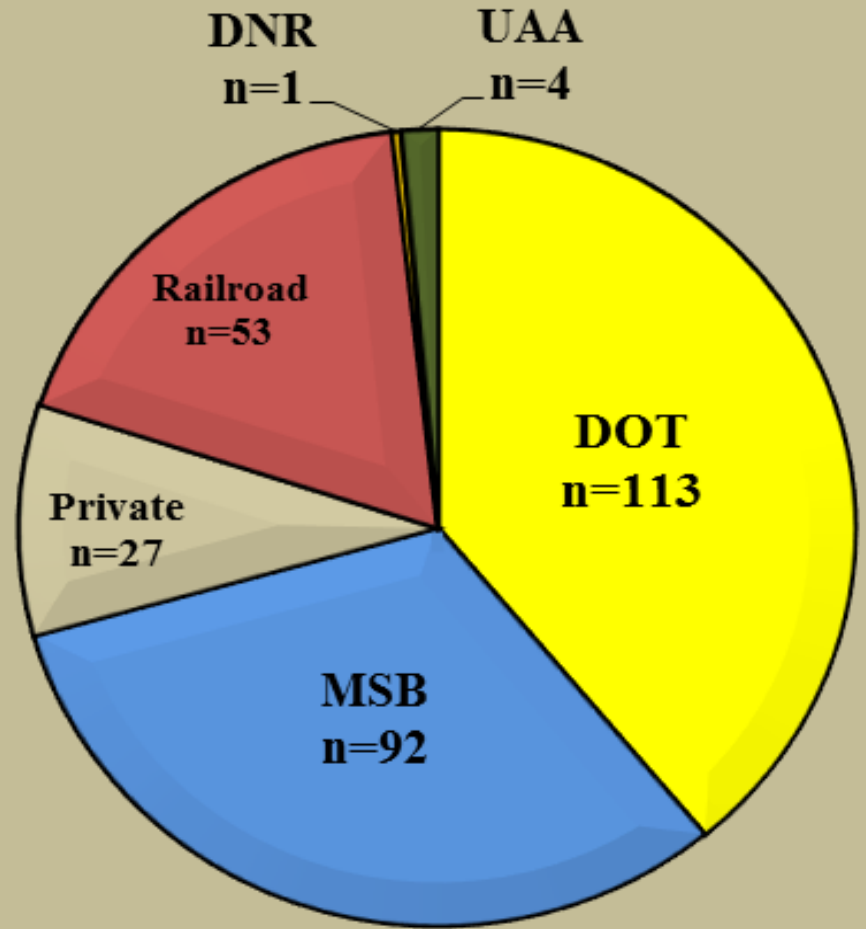
# Barriers by Owner 2000-2015



## 395 Salmon Barriers Prior to Restorations - 2000



## 290 Salmon Barriers 2015



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# Prioritizing Remaining Barriers



## Methods

1. **Define Salmon Barriers**
2. **Measure Miles Upstream**
3. **Estimating Cost**
4. **Rank by Cost-Benefit Ratio**

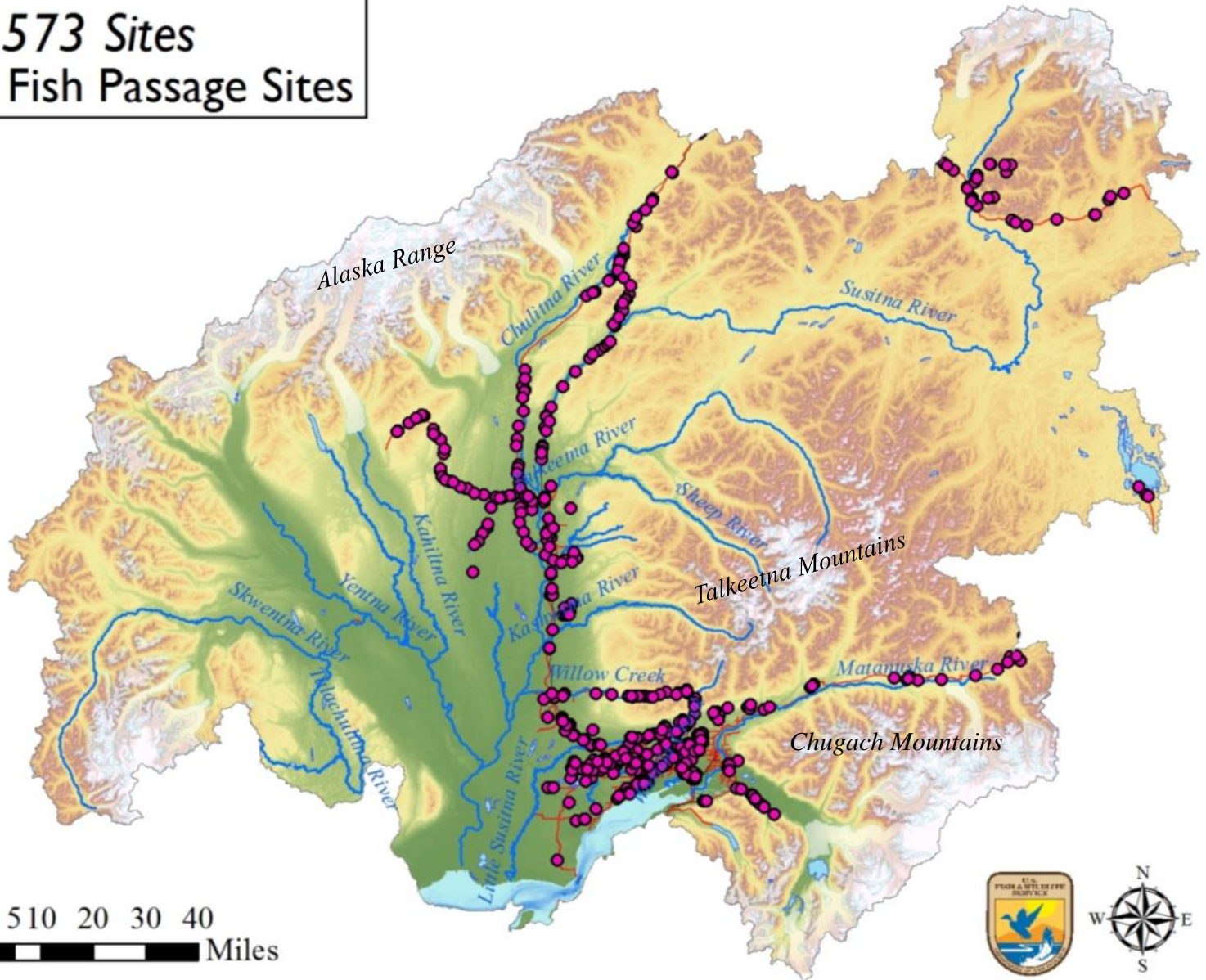


# ADF&G Fish Passage Sites



573 Sites

- Fish Passage Sites





# I. Define Salmon Barriers



## Selection Criteria:

### 1) Anadromy

- AWC Documented
- Sites without natural barriers

### 2) ADF&G Rating

- Red
- Gray
- Black

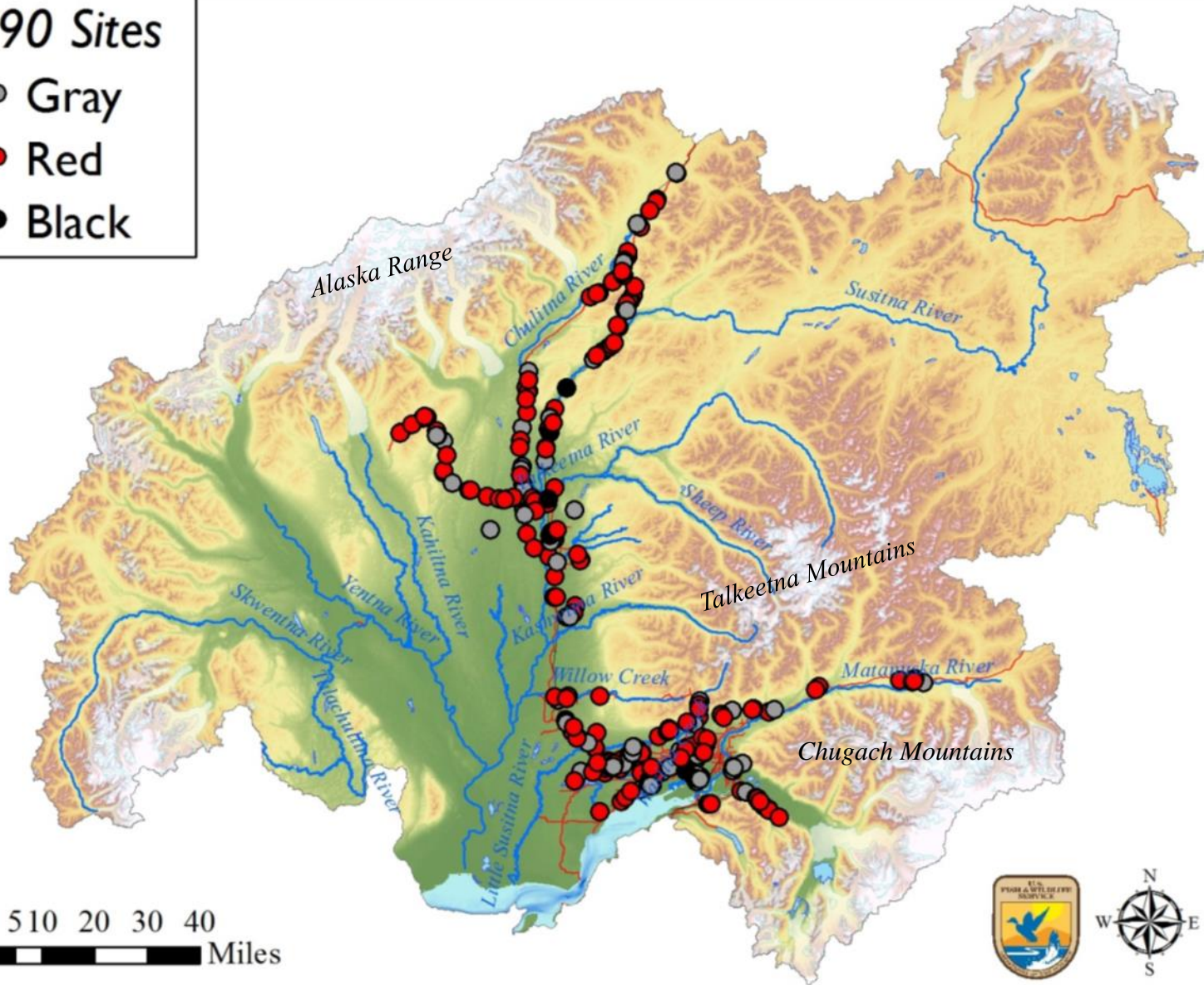


# Salmon Barrier Sites



290 Sites

- Gray
- Red
- Black



0 5 10 20 30 40  
Miles



# Prioritizing Remaining Barriers



## Methods

~~1. Define Salmon Barriers~~

**2. Measuring Miles Upstream**



3. Estimating Cost

4. Rank by Cost-Benefit Ratio

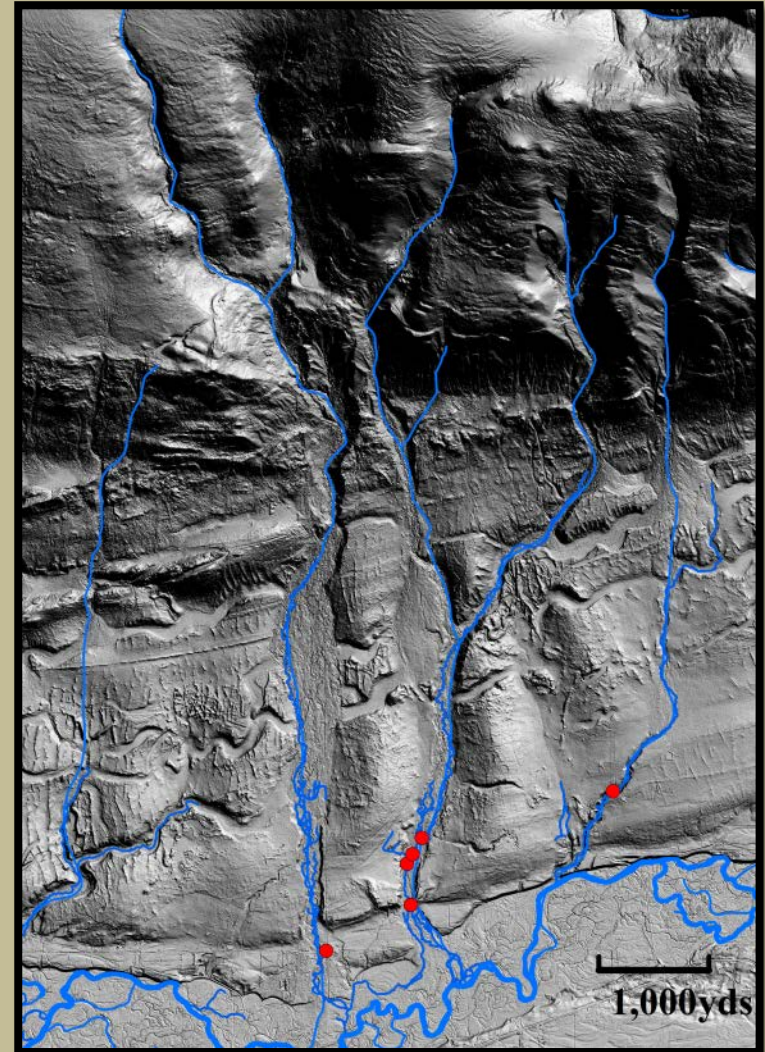


# 2. Measure Miles Upstream



## Upstream until:

- Another Fish Passage Site
- Stream ended
- Slope  $\geq 10\%$





# Upstream Miles & Barrier Results




- **290** Remaining Barriers
- **371** Miles Upstream
- **63** Barriers Responsible for 75% (278 mi)



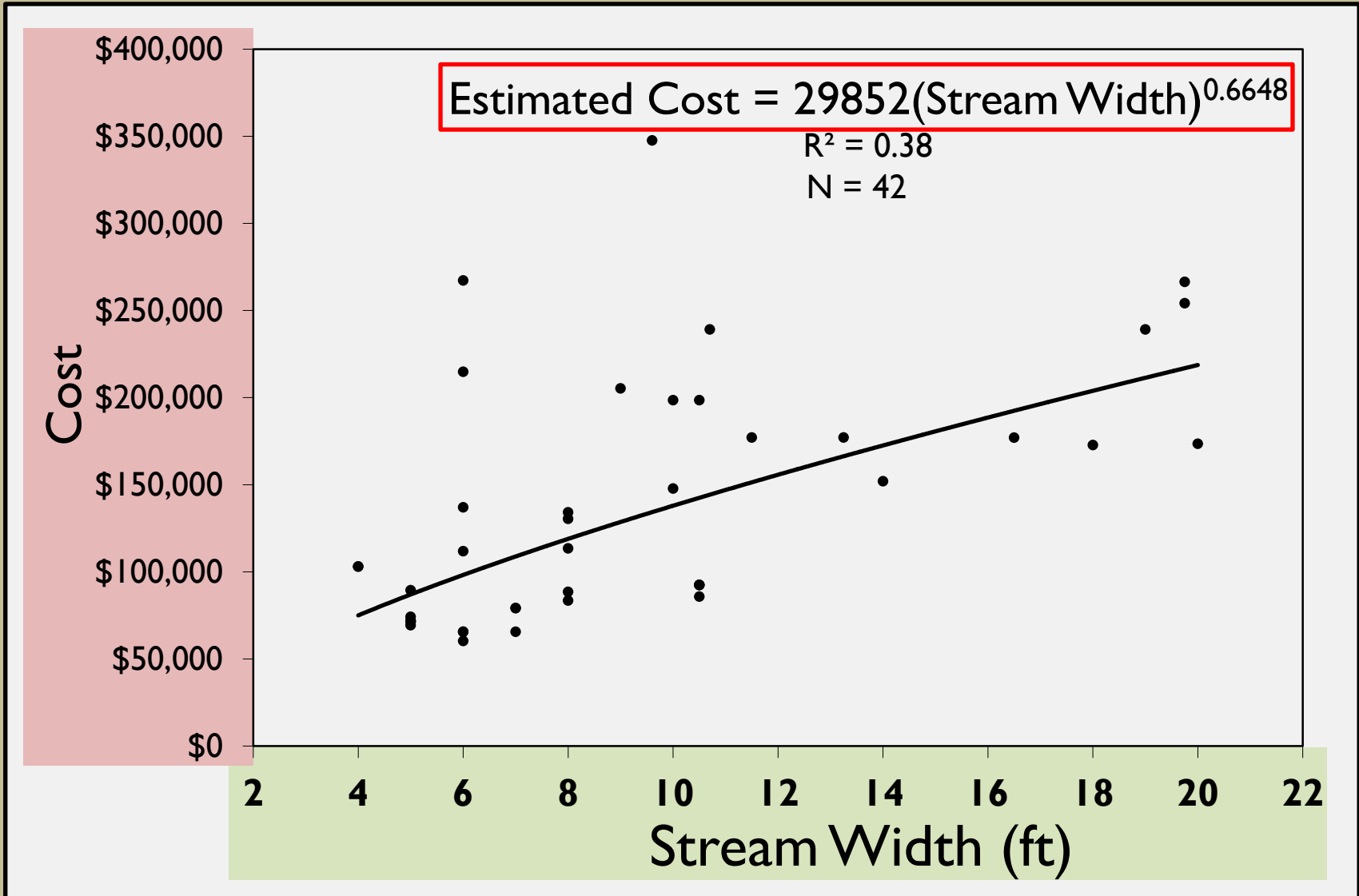
# Prioritizing Remaining Barriers



## Methods

- ~~1. Define Salmon Barriers~~
- ~~2. Measuring Miles Upstream~~
- 3. Estimating Cost** 
4. Rank by Cost-Benefit Ratio

# 3. Estimate of Restoration Cost



# 4. Rank by Cost-Benefit Ratio



Road Name	Estimated Cost	Upstream Miles	Upstream Mile Ranking	Cost-Benefit (\$ per mi)	Cost Benefit Ranking
<b>Petersville Road</b>	\$286,000	20.3	<b>2</b>	\$14,089	<b>1</b>
<b>Old Matanuska Road</b>	\$85,000	5.8	<b>11</b>	\$14,767	<b>2</b>
<b>Parks Highway</b>	\$549,000	33.8	<b>1</b>	\$16,247	<b>3</b>
<b>Glenn Highway</b>	\$269,000	11.4	<b>4</b>	\$23,493	<b>4</b>
<b>Parks Highway</b>	\$175,000	6.3	<b>10</b>	\$27,690	<b>5</b>
<b>Old Parks Highway</b>	\$207,000	7.4	<b>7</b>	\$27,973	<b>6</b>
<b>Talkeetna Spur Road</b>	\$507,000	14.9	<b>3</b>	\$34,073	<b>7</b>
<b>Birch Road</b>	\$111,000	3.1	<b>31</b>	\$36,265	<b>8</b>
<b>Parks Highway</b>	\$206,000	5.0	<b>15</b>	\$41,200	<b>9</b>
<b>Fish Lake Road</b>	\$85,000	1.8	<b>57</b>	\$47,222	<b>10</b>
<b>Private Drive off Lakes Blvd</b>	\$85,000	1.7	<b>62</b>	\$50,000	<b>11</b>
<b>Petersville Road</b>	\$262,000	5.1	<b>14</b>	\$51,172	<b>12</b>
<b>Parks Highway</b>	\$458,000	8.6	<b>5</b>	\$53,256	<b>13</b>
<b>Alaska Railroad</b>	\$321,000	5.5	<b>12</b>	\$58,470	<b>14</b>
<b>Shaman Road</b>	\$208,000	3.3	<b>26</b>	\$63,804	<b>15</b>



# Top 15 Barriers Summary



<b>Ownership</b>	<b>Number of Barriers</b>	<b>Total Miles</b>	<b>Total Estimated Cost</b>	<b>Average Cost-Benefit (\$/mile)</b>
<b>DOT</b>	8	105.5	\$2,712,000	\$32,652
<b>MSB</b>	5	21.3	\$696,000	\$38,006
<b>Railroad</b>	1	5.5	\$321,000	\$58,470
<b>Private</b>	1	1.7	\$85,000	\$50,000
<b>Total</b>	<b>15</b>	<b>133.9</b>	<b>\$3,814,000</b>	<b>\$37,315</b>

# Summary



- **Prioritizations help inform Partnership efforts and maximize finite conservation funding.**
- **Progress: 105 Barriers and 234 miles Restored 2000-2015**
- **Remaining: 371 Miles Upstream of 290 Barriers**
- **63 Barriers Responsible for 75% (278 mi)**



# Questions?





# Barriers Restored 2000-2015

