The National Fish Habitat Road – Linking system processes to the condition of our nation’s aquatic habitat

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The Problem – Fisheries and Their Habitat is at a Crossroads

• 40% of our commercial and recreational fisheries are declining

• 37% of our freshwater fish species are trouble
  – 67% of mussels and crayfish

• Habitat rehabilitation strategies were not working
  – Symptom focus
# Fisheries Habitat Amount Impaired (USEPA 303 and 305)

<table>
<thead>
<tr>
<th>Class</th>
<th>Total</th>
<th>Good</th>
<th>Threatened</th>
<th>Impaired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estuary (mi²)*</td>
<td>75,979</td>
<td>48,356</td>
<td></td>
<td>27,736</td>
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<tr>
<td>Lake (ac)</td>
<td>42,922,415</td>
<td>16,012,389</td>
<td></td>
<td>26,935,056</td>
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<tr>
<td>Ocean (mi²)*</td>
<td>61,320</td>
<td>2,502</td>
<td>602</td>
<td>58,216</td>
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<tr>
<td>River (mi)</td>
<td>3,685,620</td>
<td>1,484,496</td>
<td>12,747</td>
<td>2,190,825</td>
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<tr>
<td>Shoreline (mi)*</td>
<td>54,182.50</td>
<td>4,410.33</td>
<td></td>
<td>49,772.07</td>
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<tr>
<td>Wetlands (ac)*</td>
<td>19,945,818</td>
<td>1,428,670</td>
<td></td>
<td>18,517,148</td>
</tr>
</tbody>
</table>

* Estuary and ocean cost = $55 billion
Key Processes – Estimated Costs

• Assumptions
  – Projects are possible – Unlikely in many cases
  – Stable environments - Unlikely

• Processes – Cost Estimates
  – Hydrology - $746 Billion
  – Connectivity - $341 Billion
  – Material Recruitment and Transport
  – Water Quality - $537 Billion
  – Geomorphology (Bottom Form and Living Habitat) - $791 Billion
  – Energy Flow
Fisheries Habitat Inland Connectivity Cost

- Installing fish passage or removing dams
  - 52,285 NDI Dams * $976,000 = $51 billion
  - 100,000 locations * $350,000 = $35 billion
- Installing downstream protection
  - 52,285 locations * $1,000,000 = $52 billion
- Stream crossings
  - 1,002,399 culverts * $200,000 = $201 billion
- Total Costs
  - Total Needed - $341 billion
Fisheries Habitat Subtotal of Inland Costs

- Partial sum of 4 of 6 processes
- Not including estuaries, shorelines or large waters
- Partial Habitat Cost
  - $2.62 trillion
ONE PERMANENT MITIGATION COST – HATCHERY REPLACEMENT OF PREVIOUSLY SUSTAINABLE FISHERIES
Public Hatcheries

- State Fish Hatcheries – 454
  - Mean = 8.9
  - Range from 0 (DE and ND) to 74 (WA)
  - 1.7 billion fish – 38 million lbs. (AADAP)

- USFWS Hatcheries – 45
  - Range from 6 – 15 per region
  - 123 million fish – 4 million lbs.
Public Hatchery Costs

• Capitol Investment – $4.99 billion
  – State Fish Hatcheries – $4.54 billion
  – Federal Fish Hatcheries - $450 million

• Annual Operating - $244 million
  – State Fish Hatcheries - $227 million
  – Federal Fish Hatcheries – $17.5 million

• ROI – Partial replacement of lost fisheries
  • $29.36 billion annually
    • assuming 40% of the fisheries value from hatchery products
    from a $73.3 billion spent on freshwater fishing (ASA 2013)
The National Fish Habitat Partnership is:

- Action oriented
- Science based collaborative effort

The Partnership works to:

- Identify priorities and knowledge gaps
- Identify and achieve measurable outcomes
- Focuses resources and funding
- Encourage public-private partnerships
- Monitor and disseminate results
Mission:
Protect, restore and enhance the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people

- **Partner Coalition** of 450+ agencies and organizations
- **Implements voluntary and non-regulatory** landscape-scale improvements
- **Leverages** federal and privately raised funds to build regional partnerships
### Geographic/Species Based Partnerships

<table>
<thead>
<tr>
<th>Number</th>
<th>Partnership</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Atlantic Coastal FHP</td>
</tr>
<tr>
<td>2</td>
<td>California Fish Passage Forum</td>
</tr>
<tr>
<td>3</td>
<td>Desert FHP</td>
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<tr>
<td>4</td>
<td>Driftless Area Restoration Effort</td>
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<td>5</td>
<td>Eastern Brook Trout Joint Venture</td>
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<tr>
<td>6</td>
<td>Fishers and Farmers Partnership</td>
</tr>
<tr>
<td>7</td>
<td>Great Lakes Basin FHP</td>
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<tr>
<td>8</td>
<td>Great Plains FHP</td>
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<tr>
<td>9</td>
<td>Hawaii FHP</td>
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<td>10</td>
<td>Kenai Peninsula FHP</td>
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<td>11</td>
<td>Matanuska-Susitna Basin Salmon Habitat Partnership</td>
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<tr>
<td>12</td>
<td>Midwest Glacial Lakes Partnership</td>
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<td>13</td>
<td>Ohio River Basin FHP</td>
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<td>14</td>
<td>Southeast Aquatic Resources Partnership</td>
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<td>15</td>
<td>Southwest Alaska Salmon Habitat Partnership</td>
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<td>16</td>
<td>Western Native Trout Initiative</td>
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<td>17</td>
<td>Pacific Marine and Estuarine FHP</td>
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<td>18</td>
<td>Southeast Alaska FHP</td>
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*The Reservoir FHP is a system based partnership that covers reservoirs geographically across the country.*
• 417 projects in 46 states
• Restored nearly 27,000 acres and 1,560 miles of river
• Direct economic impacts (wages and materials) totals $145 million and 1,100 jobs
• The long-term value estimated at $851 million, generating 19,259 jobs
• Return on investment totals nearly 18:1

(2006-2012)

2.6:1 funding contribution
FWS investments $15.5 M
Partner investments $39.7 M
Key Tenets Driving NFHP Science and Data Efforts

• Measure, map and understand processes driving habitat issues from the mountains to the shelf, not the symptoms
• Measure and map measure progress in protecting and improving aquatic habitat
• Guide decisions on where and how to make strategic investments in habitat
  – Protect intact healthy systems
  – Rehabilitate degraded systems
  – Improve engineered systems
• Ensure transparency with a public data system
State of the Nation’s Fish Habitat (NFHP 2011)
Key Processes for All Systems

- Hydrology
- Connectivity
- Material Transport
- Water Quality
- Bottom Form and Living Habitat
- Energy Flow
Ultimate Assessment Vision

• Compare measured to the natural or expected variation and track over time

Annual Hydrograph

Discharge (cfs)

Month

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

> 25% line

Impaired

Impaired
Thank You!

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Visit www.fishhabitat.org for more information