



# **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 in trouble
  - 67% of mussels and crayfish
- Habitat rehabilitation strategies were not working
  - Symptom focus



# Fisheries Habitat Amount Impaired (USEPA 303 and 305)

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

\* 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**

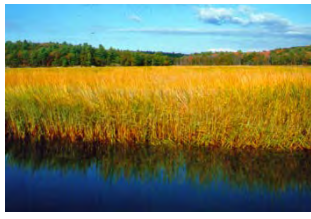




## Fisheries Habitat Subtotal of Inland Costs

- Partial sum of 4 of 6 processes
- Not including estuaries, shorelines or large waters
- Partial Habitat Cost
  - **\$2.62 trillion**





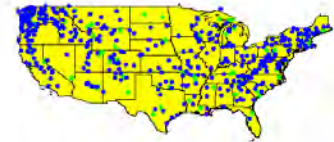
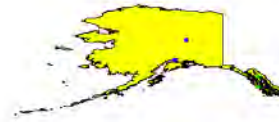
# ONE PERMANENT MITIGATION COST – HATCHERY REPLACEMENT OF PREVIOUSLY SUSTAINABLE FISHERIES





# 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

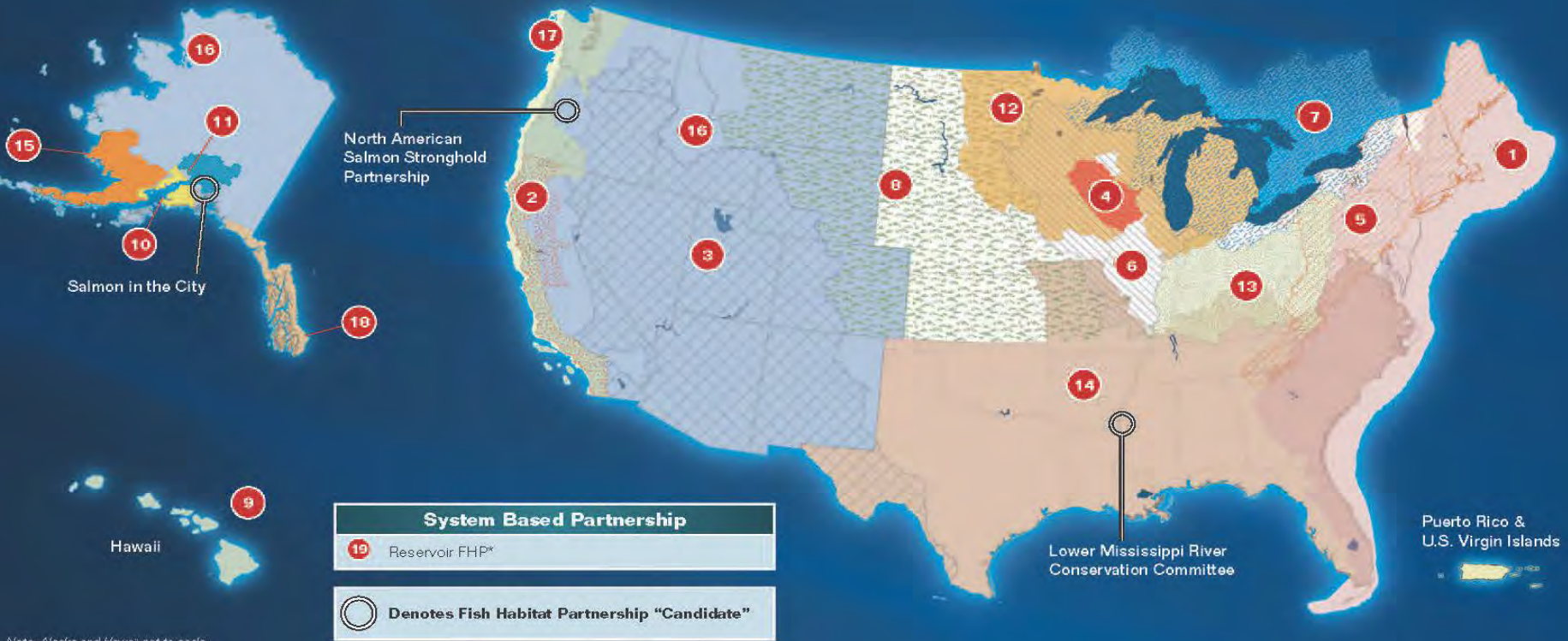




## Mission:

**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

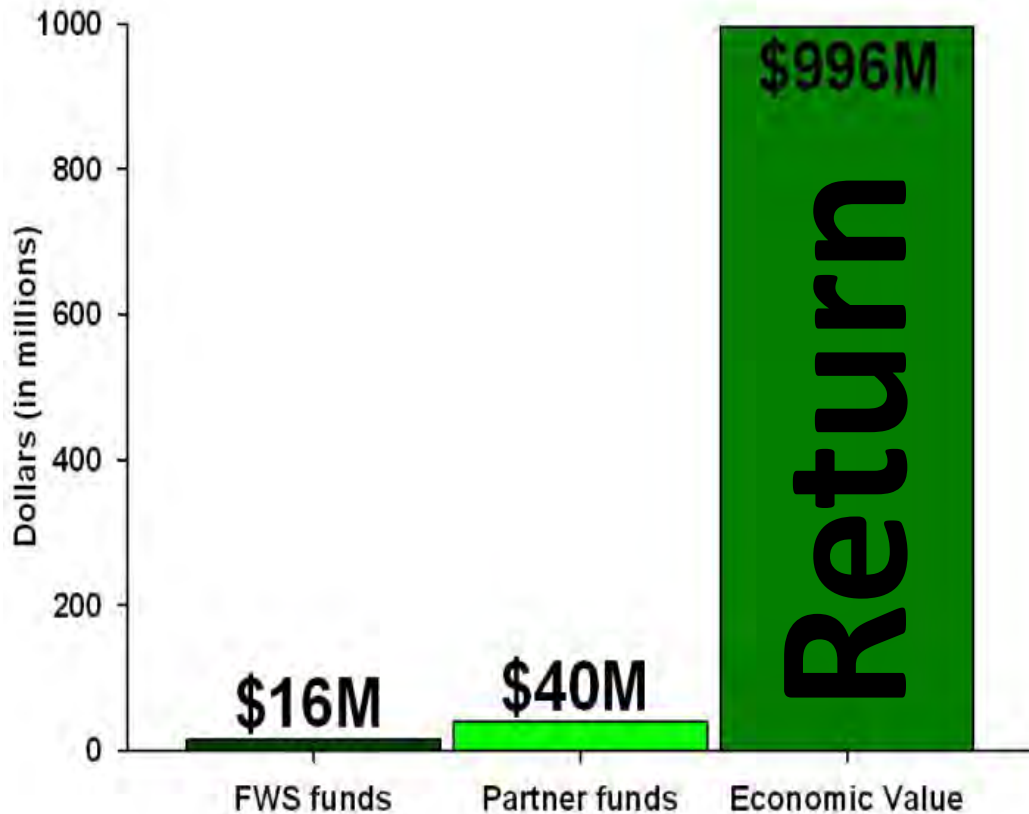
- ***Partner Coalition*** of 450+ agencies and organizations
- ***Implements voluntary and non-regulatory*** landscape-scale improvements
- ***Leverages*** federal and privately raised funds to build regional partnerships



### Geographic/Species Based Partnerships

1 Atlantic Coastal FHP	7 Great Lakes Basin FHP	13 Ohio River Basin FHP
2 California Fish Passage Forum	8 Great Plains FHP	14 Southeast Aquatic Resources Partnership
3 Desert FHP	9 Hawaii FHP	15 Southwest Alaska Salmon Habitat Partnership
4 Driftless Area Restoration Effort	10 Kenai Peninsula FHP	16 Western Native Trout Initiative
5 Eastern Brook Trout Joint Venture	11 Matanuska-Susitna Basin Salmon Habitat Partnership	17 Pacific Marine and Estuarine FHP
6 Fishers and Farmers Partnership	12 Midwest Glacial Lakes Partnership	18 Southeast Alaska FHP

\*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

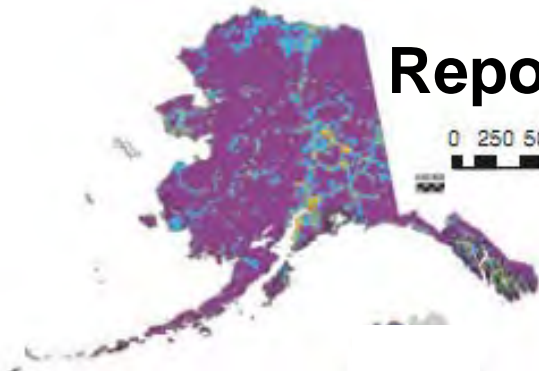


# Key Tenets Driving NFHP Science and Data Efforts

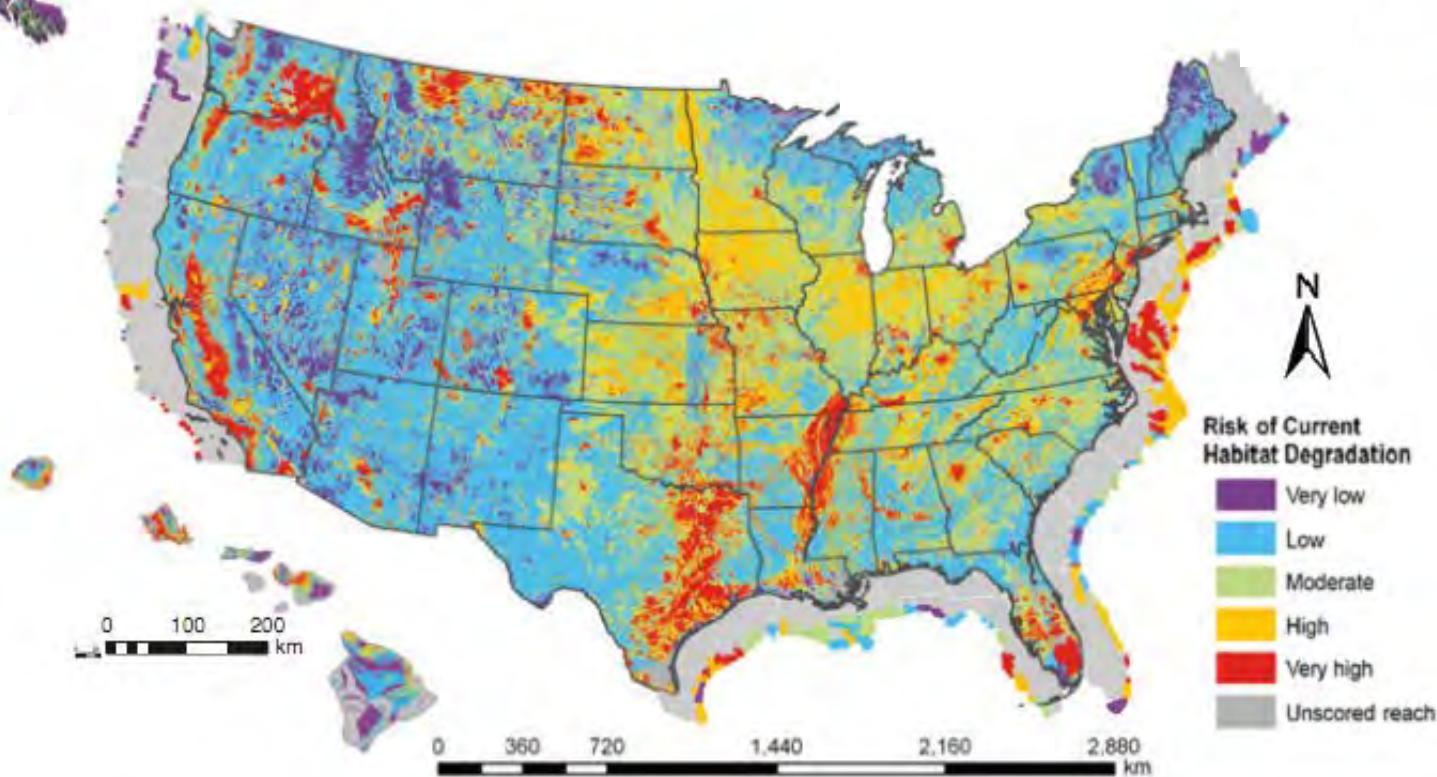
- **Measure, map and understand processes driving habitat issues from the mountains to the shelf, not the symptoms**
- **Measure and map measure progress in protecting and improving aquatic habitat**
- **Guide decisions on where and how to make strategic investments in habitat**
  - **Protect intact healthy systems**
  - **Rehabilitate degraded systems**
  - **Improve engineered systems**
- **Ensure transparency with a public data system**



# Report on the Nation's Fish Habitat Every 5 Years



0 250 500  
km



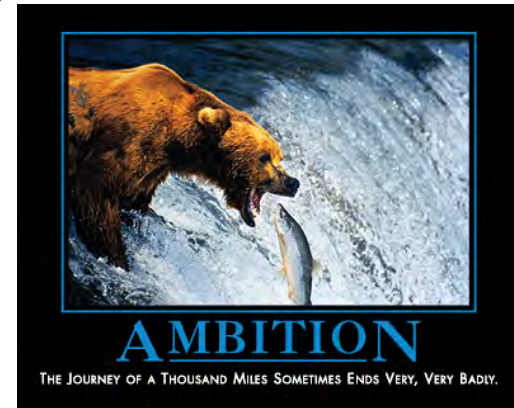
## State of the Nation's Fish Habitat (NFHP 2011)



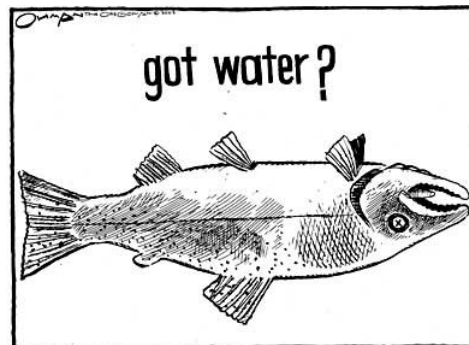


# Key Processes for All Systems

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



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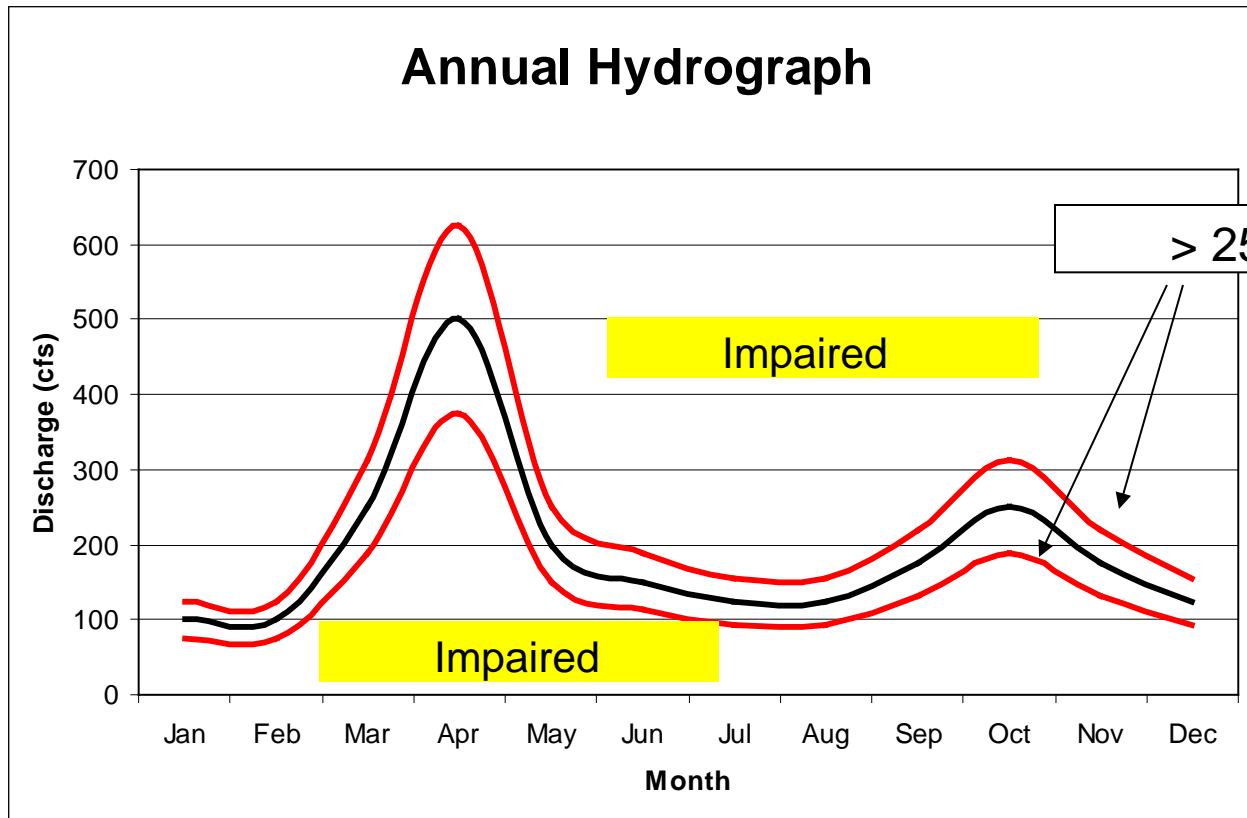
GETTY IMAGES





# Ultimate Assessment Vision

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





# Thank You!

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Visit [www.fishhabitat.org](http://www.fishhabitat.org)  
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