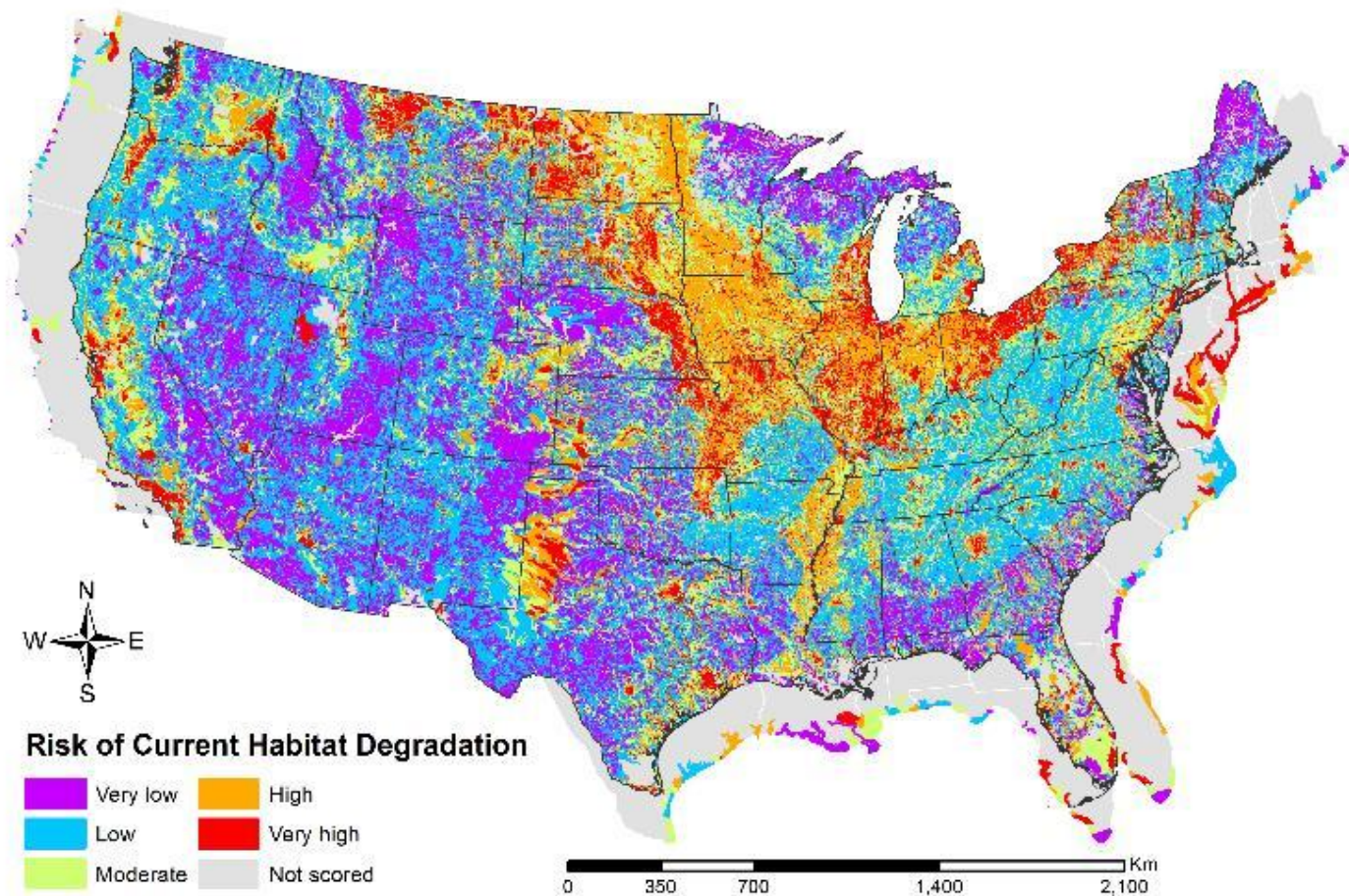
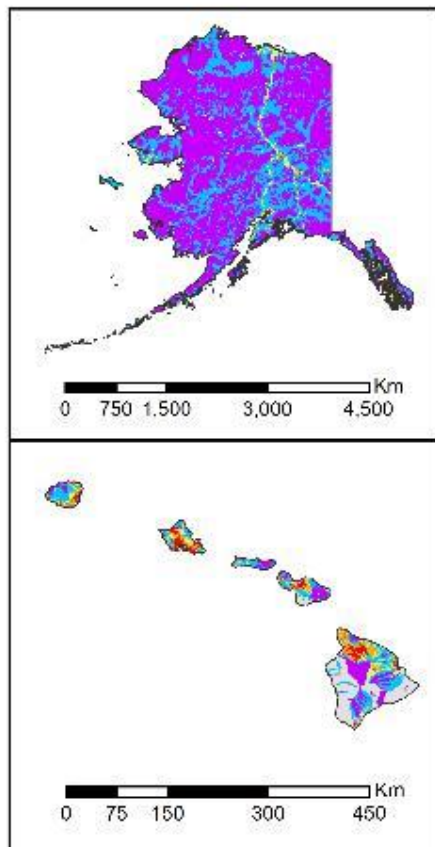




National Fish Habitat Partnership National Assessment Workshop SDC Perspectives

**Gary Whelan (MI DNR) and Peter Ruhl (USGS)
NFHP Board Science and Data Committee
October 2016**



Nothing else like it in the world!!!!



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective

- Strengths
 - Large scale compilation of many datasets
 - Peer reviewed standardized approach
 - Generally correct
 - Provides standardized spatial framework and backbone data
 - Landscape approach
 - Acknowledged weaknesses
- Weaknesses
 - Missing datasets
 - Too coarse
 - Too broad a scope
 - Data scaling issues
 - Complex data system
 - Results do not match expectations at times



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective

- Uses and Results of Current Assessments
 - Paints the Nation's Fish Habitat to a broad audience
 - Data engine under many decision support tools
 - Downstream Strategies Regional Assessments
 - Great Lakes Connectivity Tools
 - Grant criteria
 - BMP direction
 - Caused the adoption of a standard spatial framework
 - Created many new datasets available to all users
- Potential Additional New Uses
 - Determine thresholds for key variables
 - Predictions of future conditions to include trend analysis
 - Including socioeconomic information to increase utility



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective

- Should the National Assessment Continue? Yes
- Are there alternatives or substitutes? No
- What are the key audiences?
 - Congress and Executive Branch
 - Board
 - Donors
- Process Improvements
 - Iterative development process
 - Increase regional data
 - Peer review of FHP Assessments by the SDC
- Communication and Outreach
 - Roll out of products to FHPs
 - Provide training on how to use FHP products
- Timeframe – No more than 5 years



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective

- Critical Management Issues
 - Climate change
 - Hydrology and interactions between surface and groundwater
 - Intensive land use such as grazing and timber harvest effects on fisheries resources
 - Incorporation of a range of additional regional datasets to include relative and available data from other assessments



National Fish Habitat Board Assessment Workshop Summary - SDC Roles

- Community of practice
- Provide science expertise for Board
 - Develop and implement the National Science and Data Strategy
 - Review and provide recommendations on requested items
 - Evaluate other assessments and LCC products
 - Conduct peer reviews of FHP data products and assessments
- Manage national assessment process
 - Design and technical guidance for assessment
 - Review interim and final assessment products
- Assist FHPs in use of assessment
- Develop and implement methods to incorporate FHP data products into the National Data Framework



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective Initial Next Steps

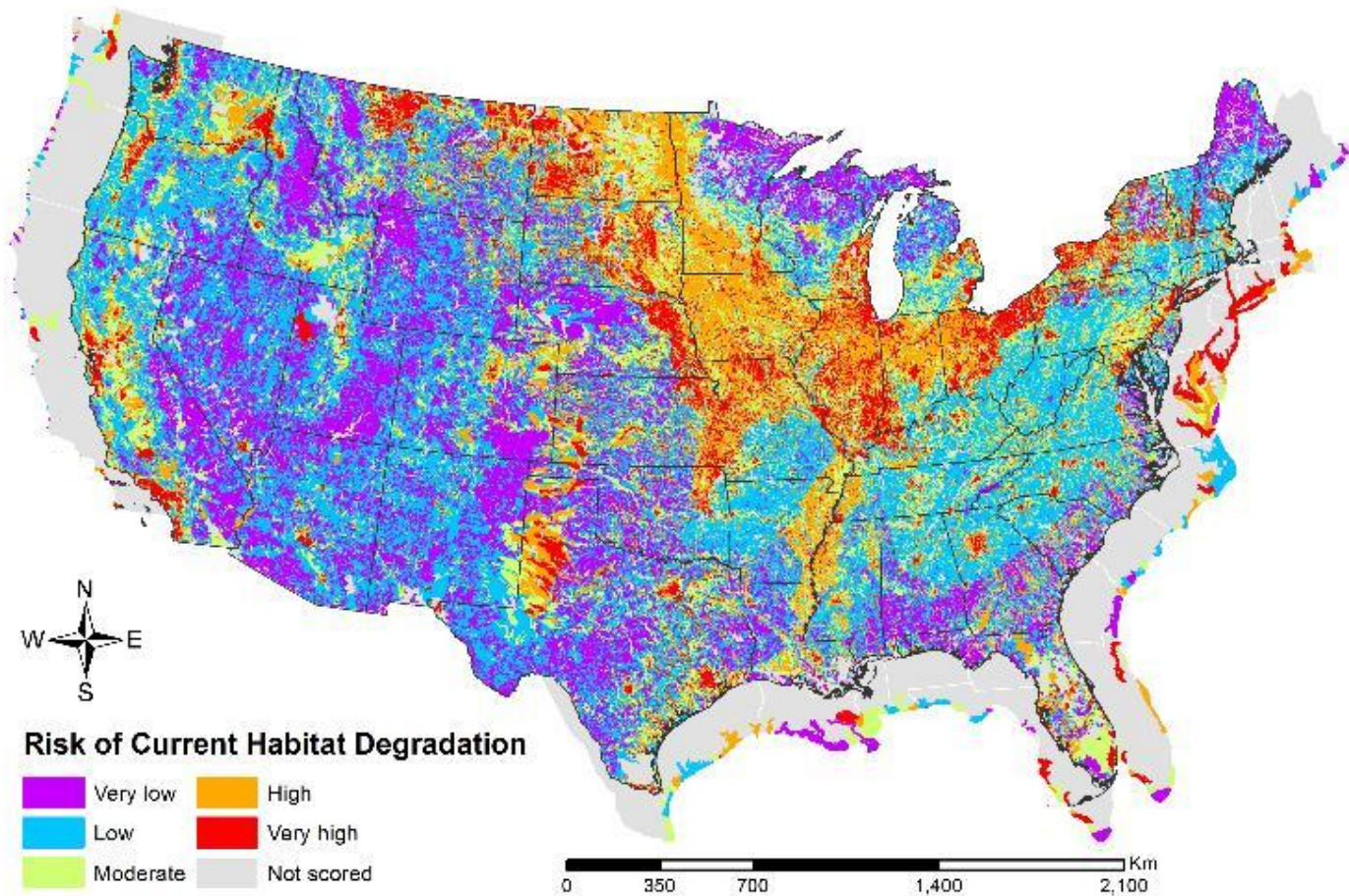
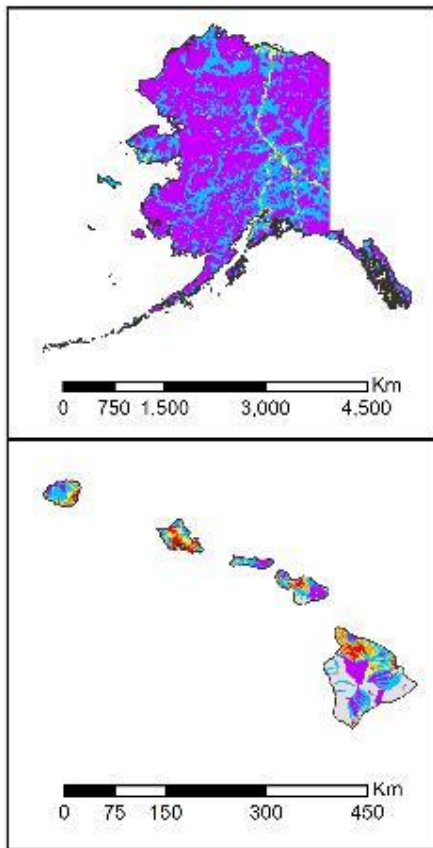
- Complete 2015 Assessment Punch List
 - Additional Modules
 - Gamefish and SCN metrics
 - Perennial stream analysis
 - Change metric between 2010 and 2015
 - Ensure full operation of web based product
 - Fully understand potential sampling bias
 - Ensure all FHP needed training and products are developed and implemented
 - Mine data for to fully understand current data signals



National Fish Habitat Board Assessment Workshop Summary – SDC Perspective

• 2017 Workplan

- Rollout 2015 assessment products and training for FHPs
- Develop and implement improved 2020 Assessment development and communications strategy for interactions with FHPs
- Define Google analytics for 2015 Assessment and dataset
- Deal with Project Data Issues - USFWS lack of georeferencing
- Define data products for further development and develop how to publicize
 - Define and highlight science products
- NHD version choices and migration roadmap
- Provide Board recommendations on LCC interactions



Nothing else like it in the world!!!!



National Fish Habitat Partnership National Assessment

**Gary Whelan (MI DNR) and Peter Ruhl (USGS)
NFHP Board Science and Data Committee
October 2016**



National Fish Habitat Board Assessment History

- 2005 – Core Group directed the pre-SDC to develop a National Assessment
 - Determine what the national condition of fish habitat
 - Directed that such an assessment be comparable nationally to allow the develop national conservation goals
 - Wanted to reach the broadest possible audience
 - National data structure to capture habitat information including showing progress
 - Some on the Core Group indicated that this would be an impossible task at any scale
 - Guide Board, FHP and staff resources



National Fish Habitat Board Assessment History

- 2006 – Board formalized the SDC structure and National Assessment requirement
 - Increase public and private focus on aquatic habitat
 - Expectation that resources to handle gaps would some available
 - Board formalized Assessment as part of their responsibilities
 - Produce “*Status of Fish Habitats in the United States*” report every 5 years
 - Partnerships produce finer level assessments



Why Do It? Board Responsibility

- To assist in developing national conservation goals
- Establish spatial framework and data criteria for *Fish Habitat Partnerships*
- Measure and communicate progress
 - Increase public and private focus on aquatic habitat
- Advocate policy
- Help guide Board member and staff resources



National Fish Habitat Board Assessment History

- 2006
 - SDC develops recommendations on the needed spatial structure, likely gaps and framework document developed
 - Selected best groups to get the work done for inland and marine assessments and work begins with SDC guidance and input
- 2010 – First assessment completed
 - Written document format and released in 2011
- 2011
 - 2nd Assessment started with SDC guidance and input
 - Added additional FHP members to SDC to increase input
- 2015 – Second assessment completed
 - 2016 – Electronic format report released
 - Rapid updates and new modules now possible



National Fish Habitat Board Assessment Investment

- Inland Assessment
 - Sponsor – USFWS
 - PI – Michigan State University – Dr. Dana Infante
 - Annual amount - \$157,000
- Marine Assessment
 - Sponsor – NOAA-NMFS
 - PI – Kristen Blackhart
 - Annual amount – Between \$100,000 - \$300,000 in-kind

<http://assessment.fishhabitat.org/>

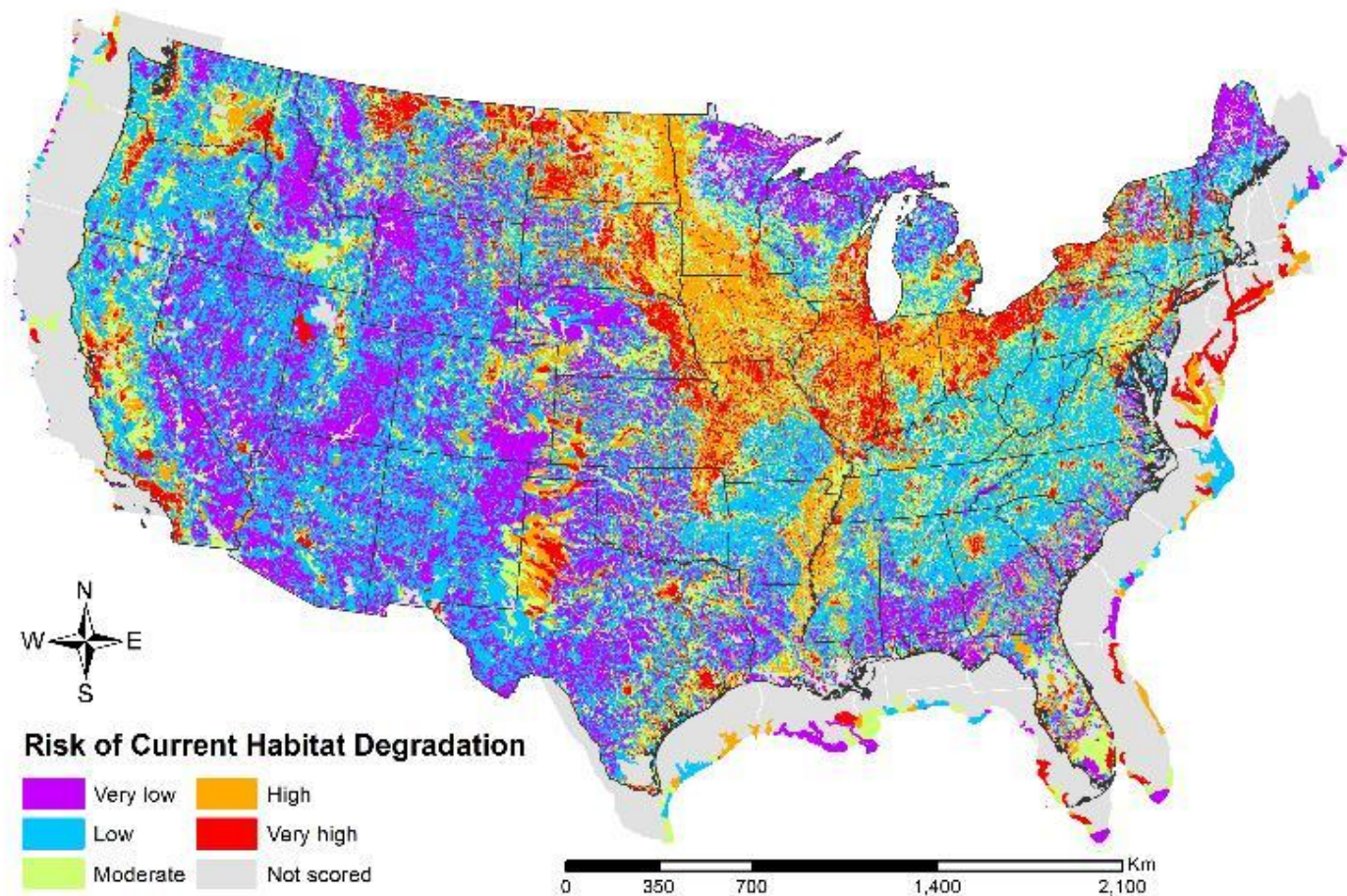
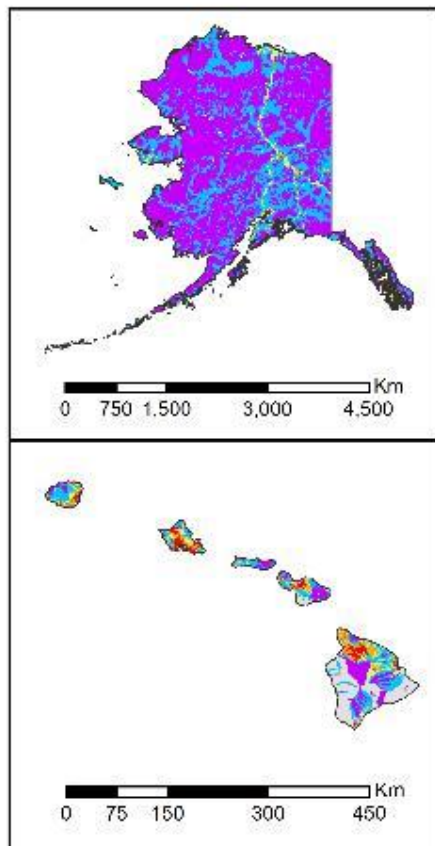
THROUGH A FISH'S EYE: THE STATUS OF THE FISH HABITATS IN THE UNITED STATES 2015

This report summarizes the results of an unprecedented nationwide assessment of human effects on fish habitat in the rivers and estuaries of the United States. The assessment assigns a risk of current habitat degradation scores for watersheds and estuaries across the nation and within 14 sub-regions. The results also identify some of the major sources of habitat degradation.

Navigate this report by:

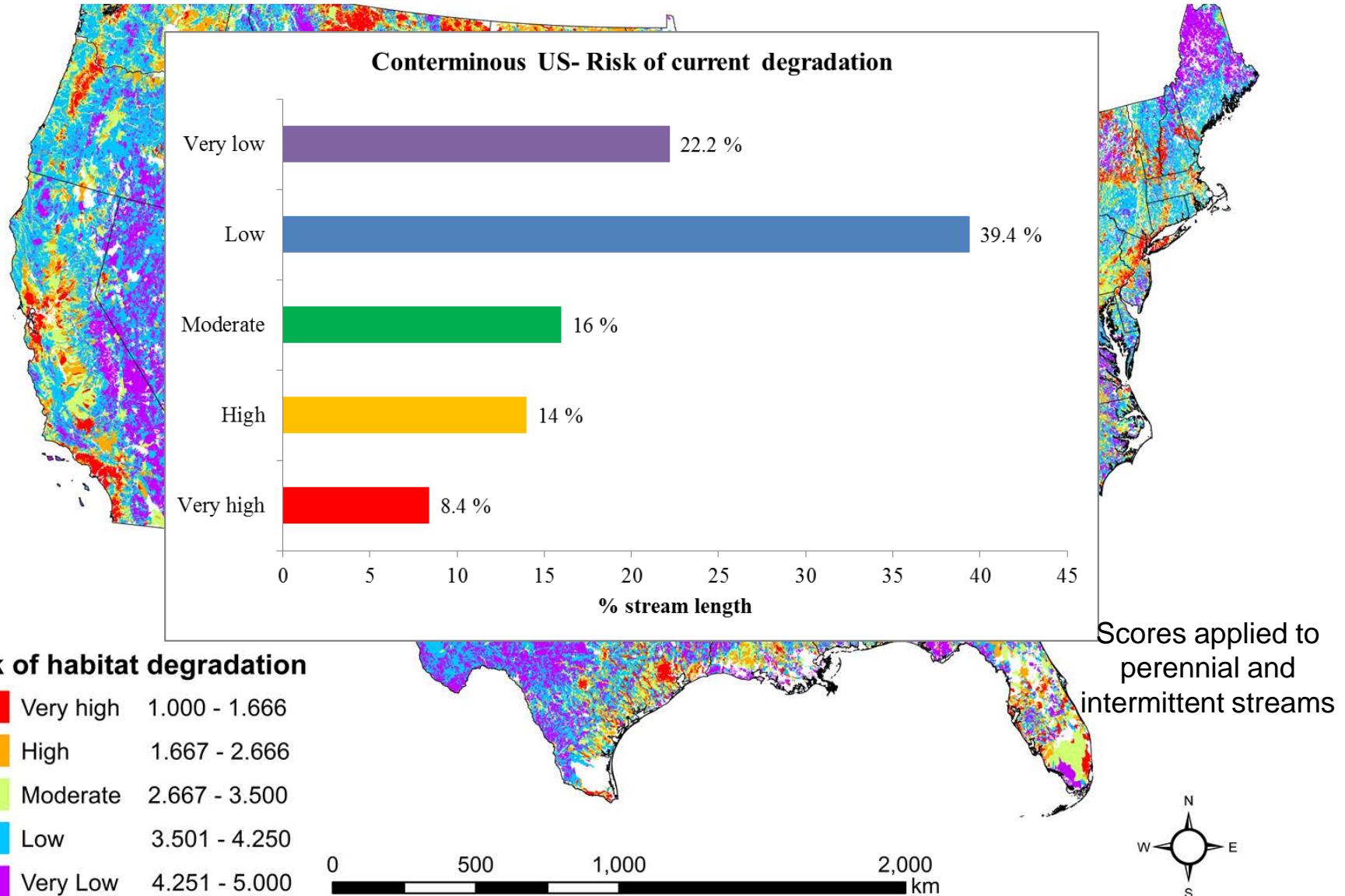
Report Content ▾

Region of Interest ▾

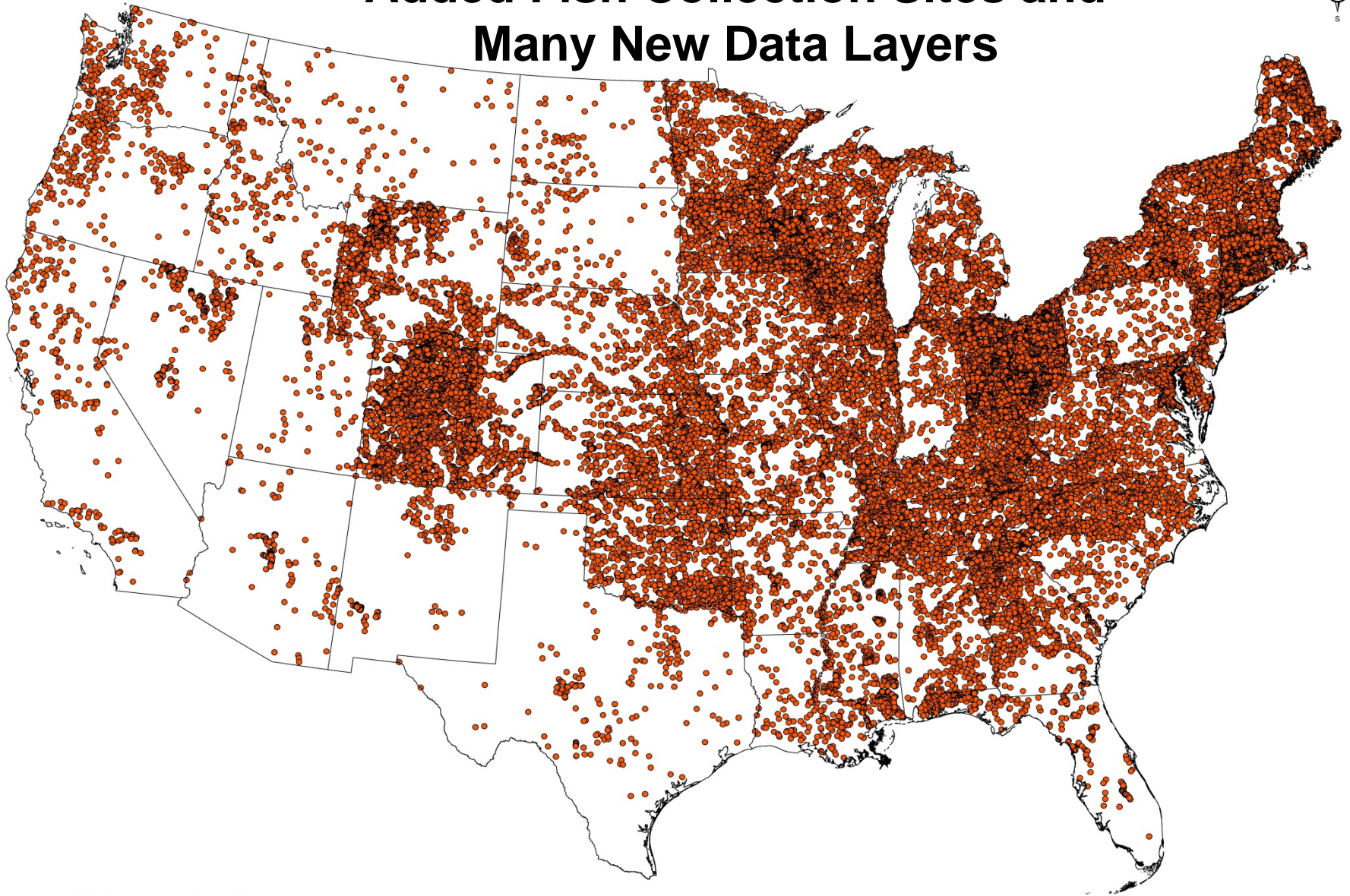


Broad, standardized and regionally comparable

2015 ASSESSMENT OF STREAM FISH HABITATS FOR NATIONAL FISH HABITAT PARTNERSHIP

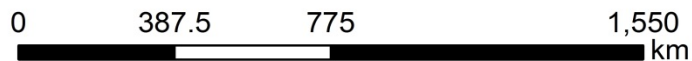


Added Fish Collection Sites and Many New Data Layers



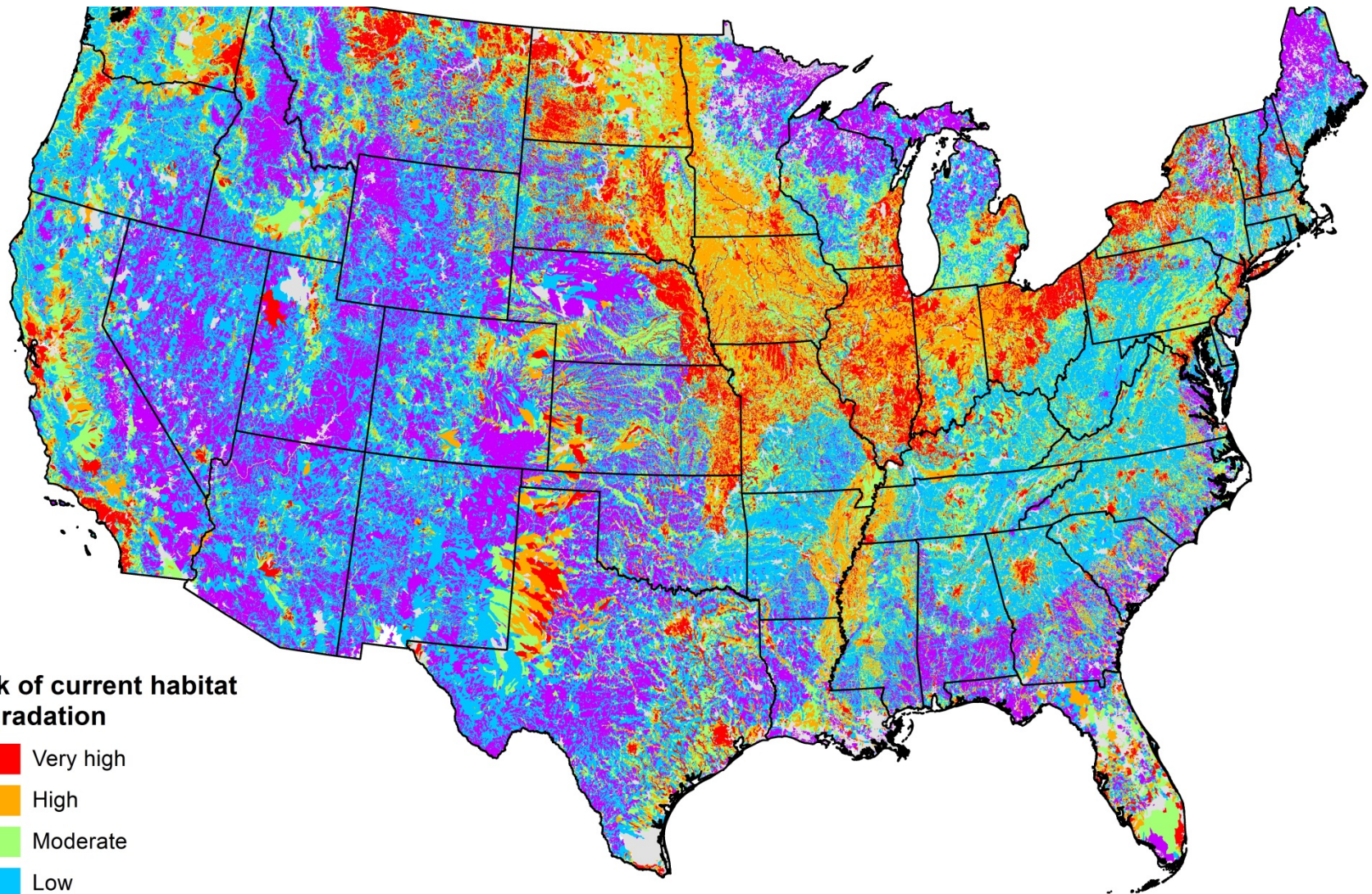
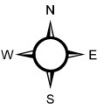
• Fish sample location

□ State boundary



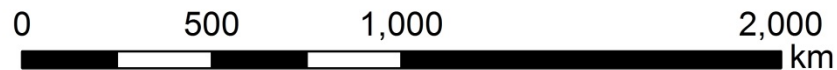
2015 Scores – All Systems – Lower 48 States

Huge and expected wide range of responses

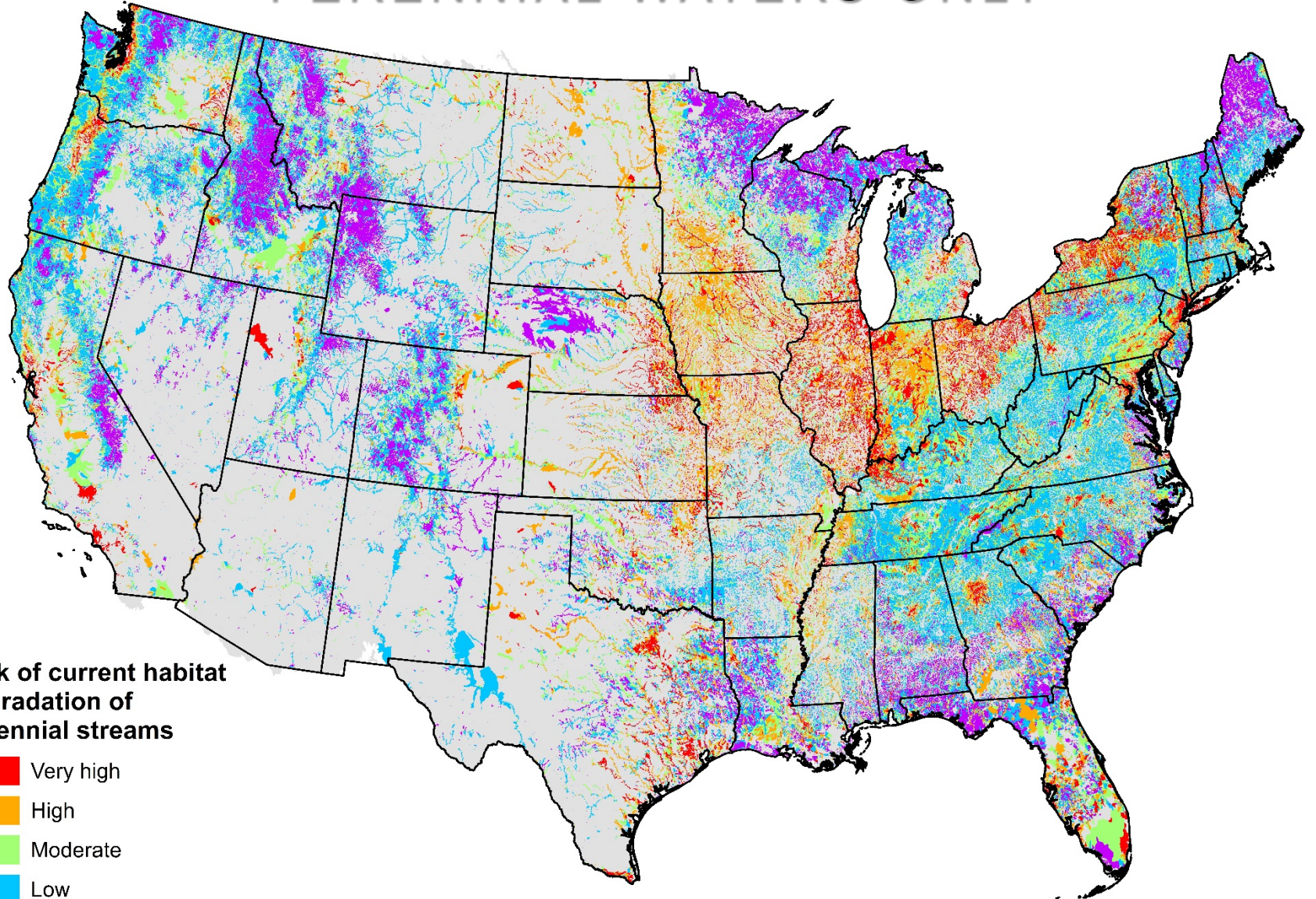
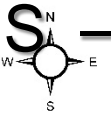


Risk of current habitat degradation

-  Very high
-  High
-  Moderate
-  Low
-  Very low
-  Not scored

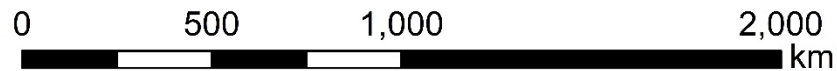


2015 ASSESSMENT OF STREAM FISH HABITATS – PERENNIAL WATERS ONLY



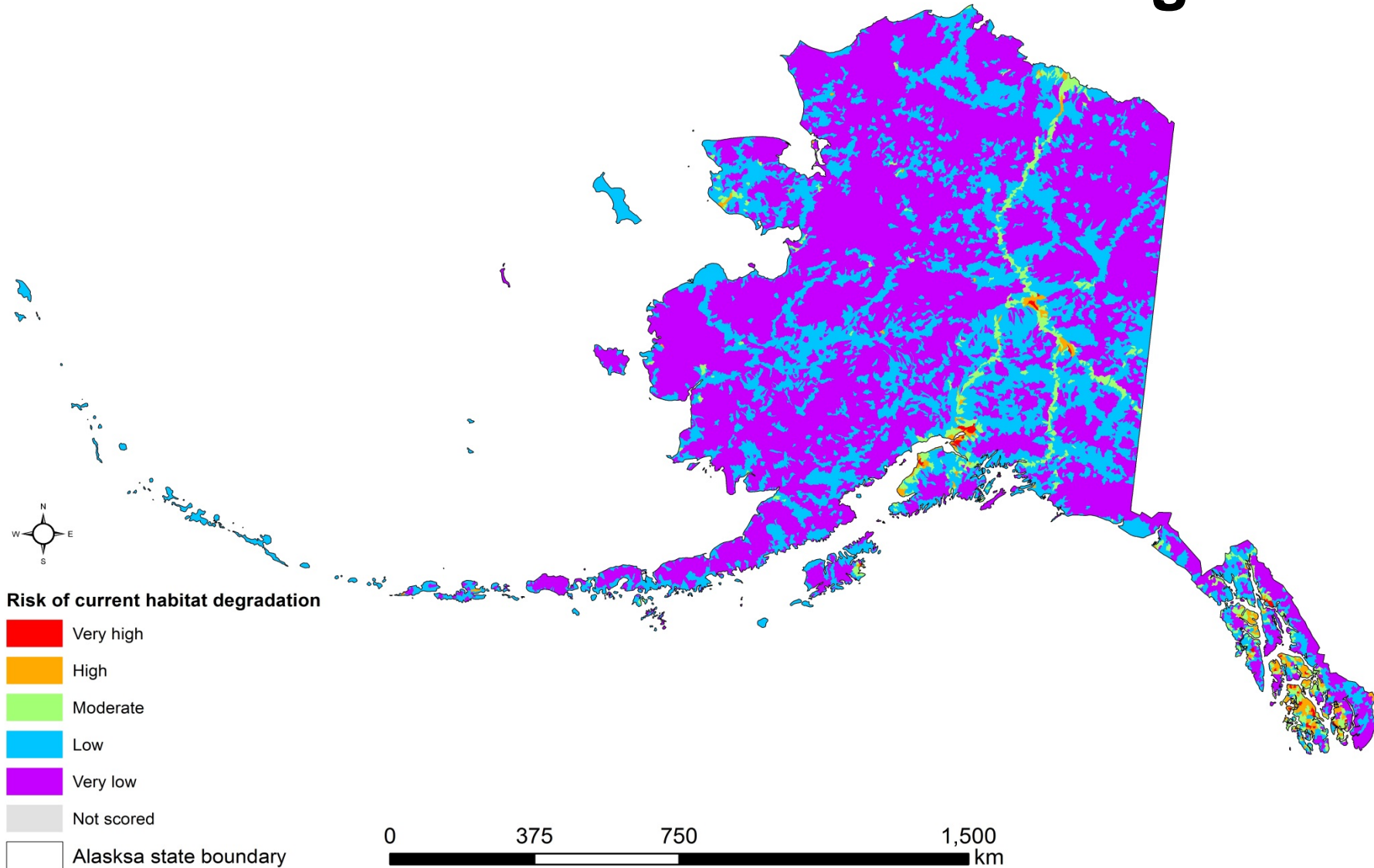
Risk of current habitat degradation of perennial streams

-  Very high
-  High
-  Moderate
-  Low
-  Very low
-  Not scored

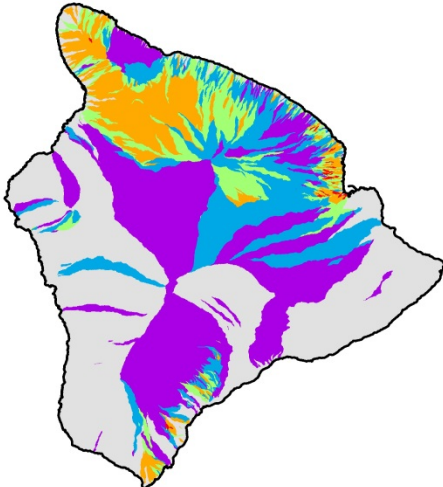
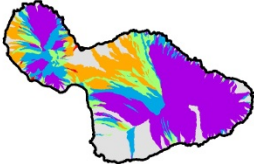
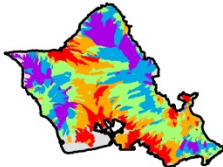
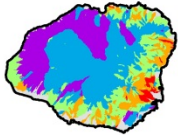


2015 Scores – Alaska

Protection is the Clear Message

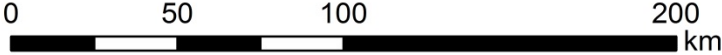


2015 Scores - Hawaii



Risk of current habitat degradation

-  Very high
-  High
-  Moderate
-  Low
-  Very low
-  Not scored



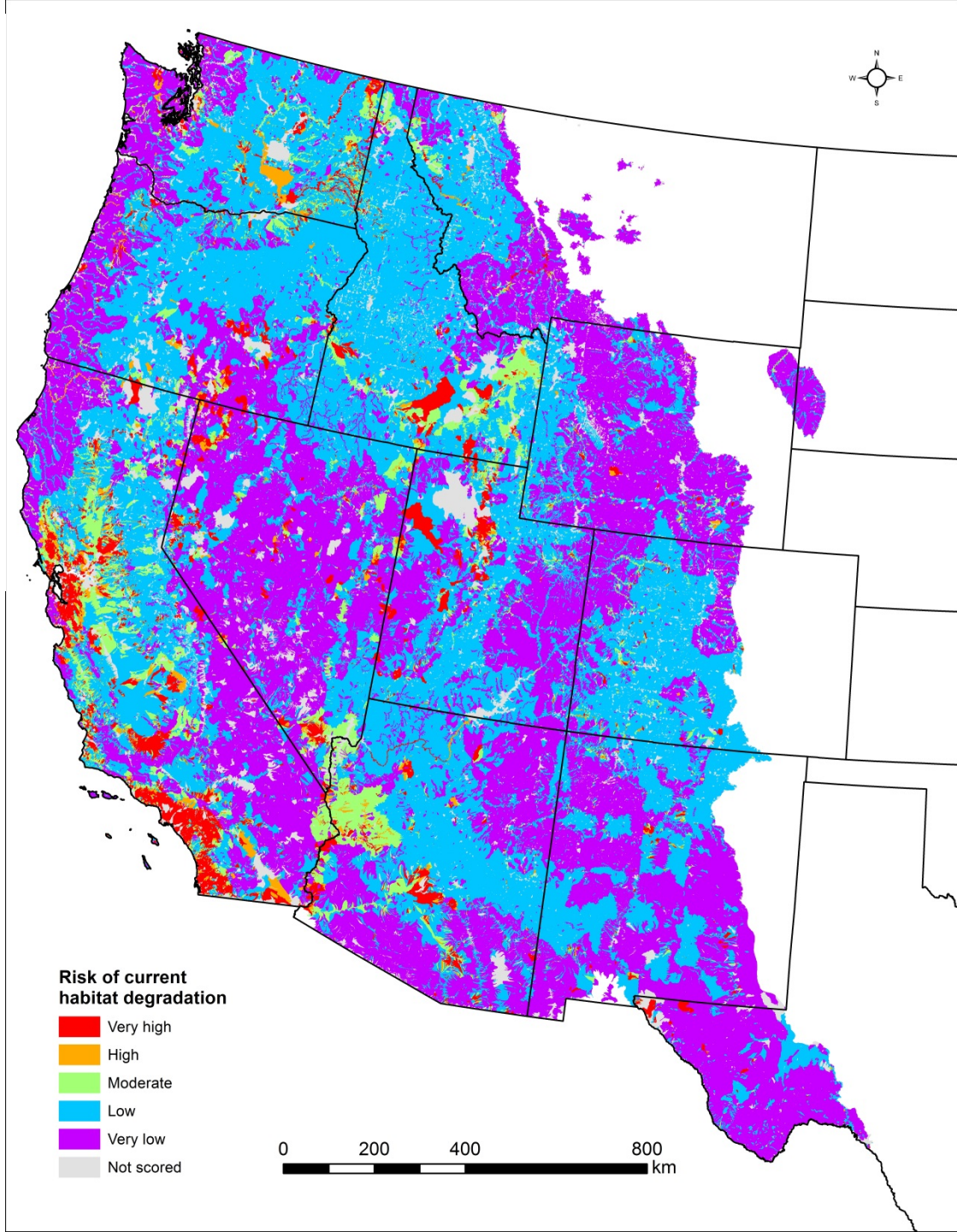
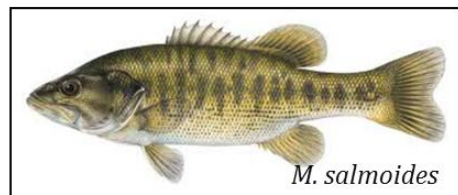
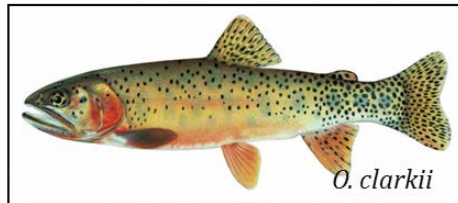
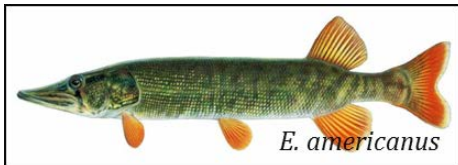


Additional Assessment Products

- **NFHP Report September/October 2016**
 - Alaska detailed methods
 - Change metric comparing 2010 to 2015 assessments
 - Game and SGCN assessments, including maps
 - Permanent streams layer
- **NFHP Data and Metadata 2016**
 - 2015 assessment metadata
 - Change metric data and metadata
 - Game and SGCN data and metadata

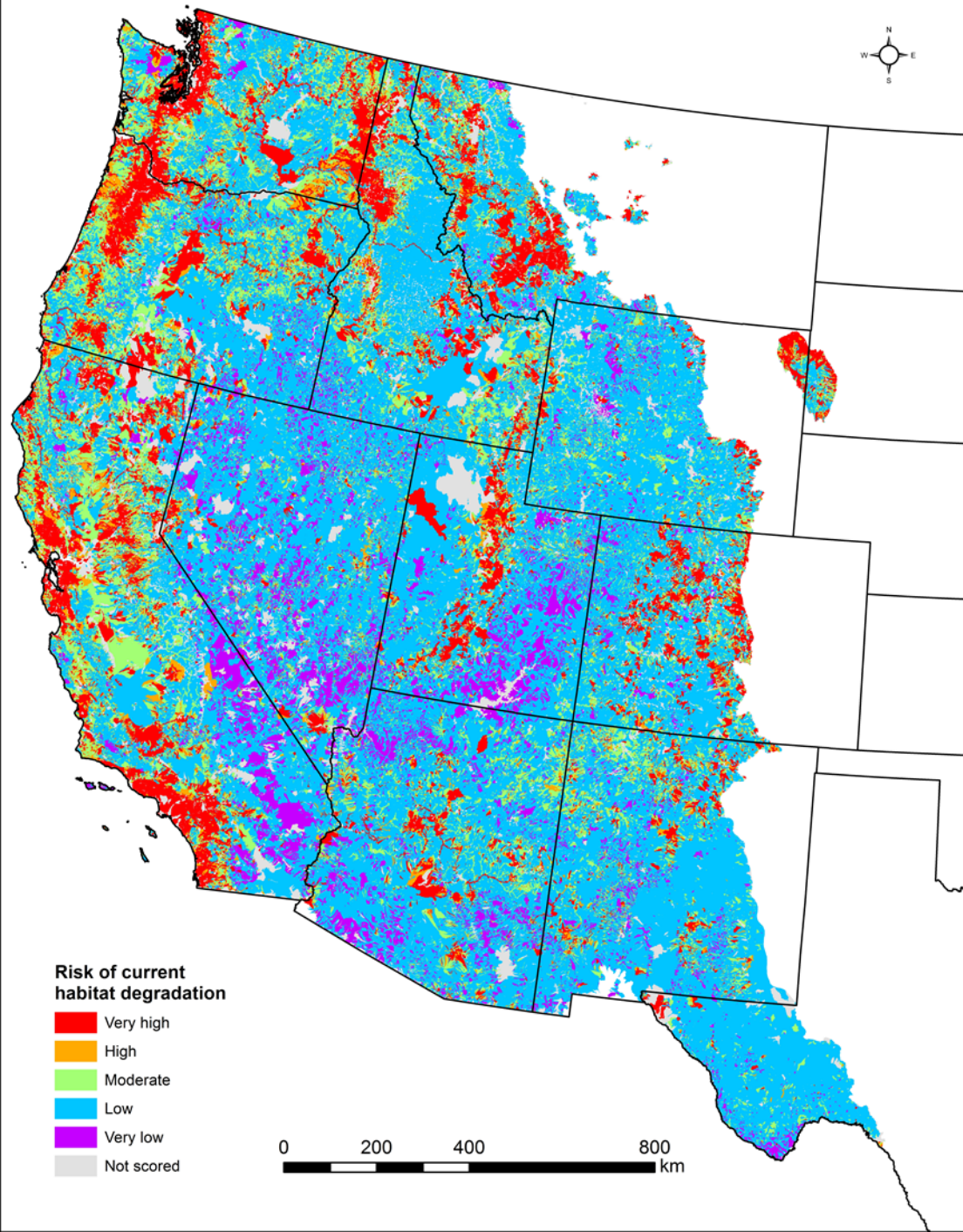
Game fishes

Game fishes are defined in this study as species (or in some cases, groups of fishes) that are recognized by individual states as potentially being targeted by anglers and that have regulations limiting their harvest for recreational use as described in publically-available fishing guide books specific to each state.



SGCN fishes

Species of Greatest Conservation Need are defined in this study as species that are recognized by individual states as species with small or declining populations or other characteristics that make them vulnerable. They include species currently federally or State listed as threatened or endangered, and other species identified through analysis of available data and recommendations from experts on particular taxa in each state.



Attention Anglers



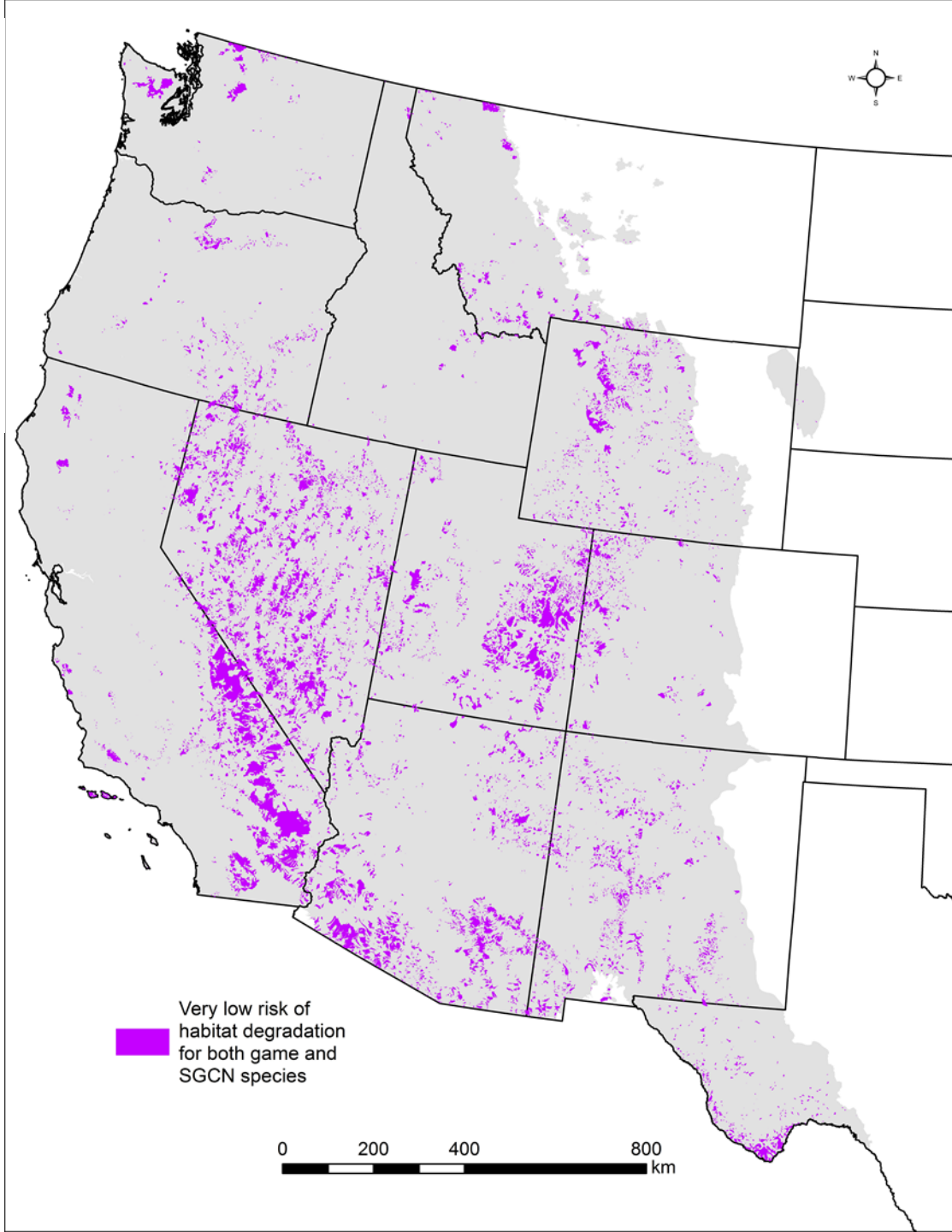
Lake Sturgeon have been stocked in this area.
Please report the catch of this "State Endangered" species to the
Kentucky Dept. of Fish and Wildlife Resources at 1-800-858-1549.

It is illegal to possess this species

Release immediately



Best available habitat for both SGCN and Game fishes



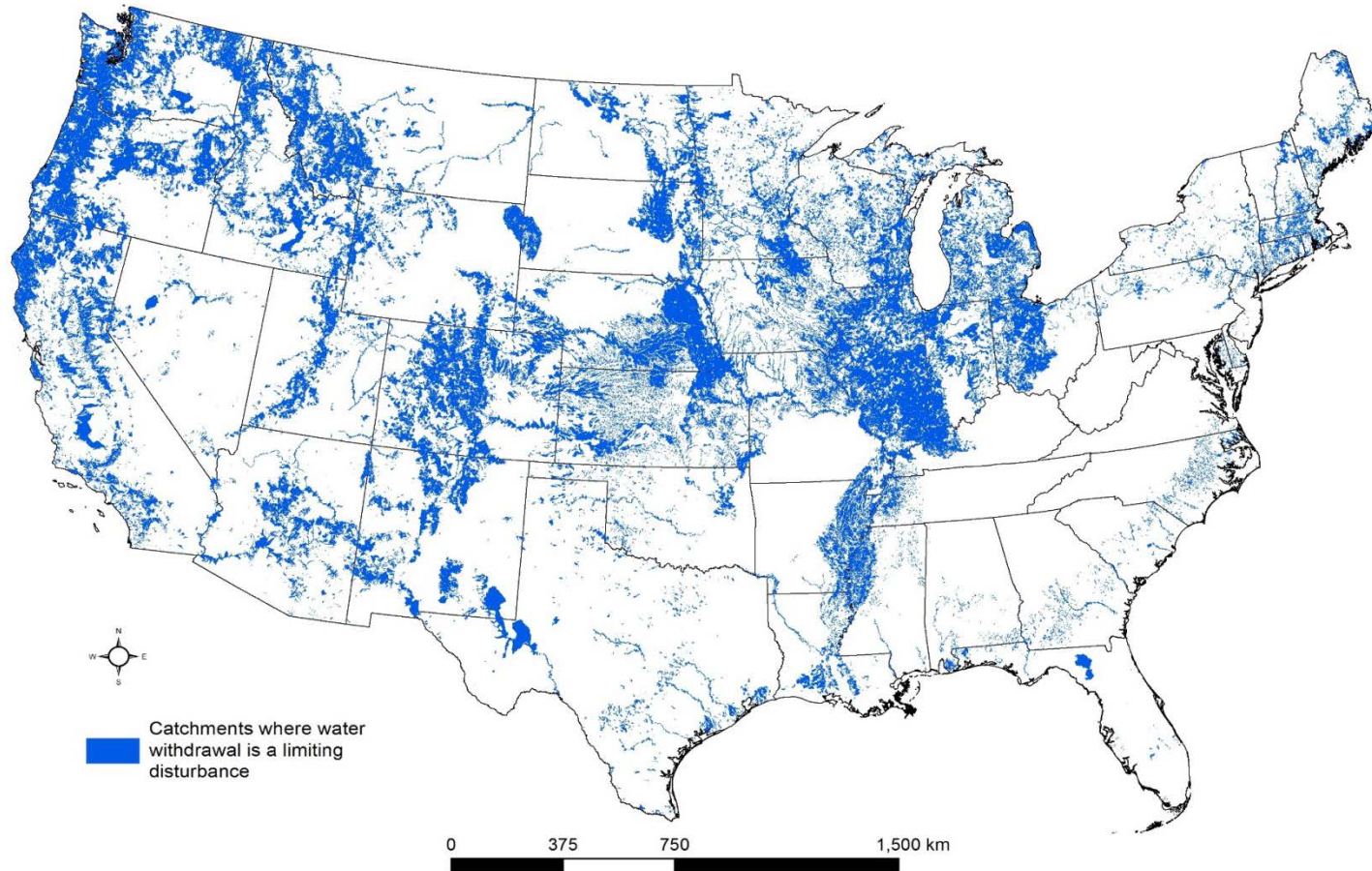
Water withdrawals as a limiting disturbance to fish habitats

Estimated Use of Water in the United States County-Level Data for 2005

The current best estimates of county, State, and national water-use data may be downloaded from the National Water Information System Web (NWISWeb) interface, [Water Data for the Nation](#), by selecting the Water Use button or data category pull-down. Data on NWISWeb may have been revised from previous publications such as Circular 1344.

These data files present water-use estimates by county for the United States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands which support the State-level water-use estimates published in [USGS Circular 1344](#), *Estimated Use of Water in the United States in 2005*. [Publication data files for other 5-year reports are also available.](#)

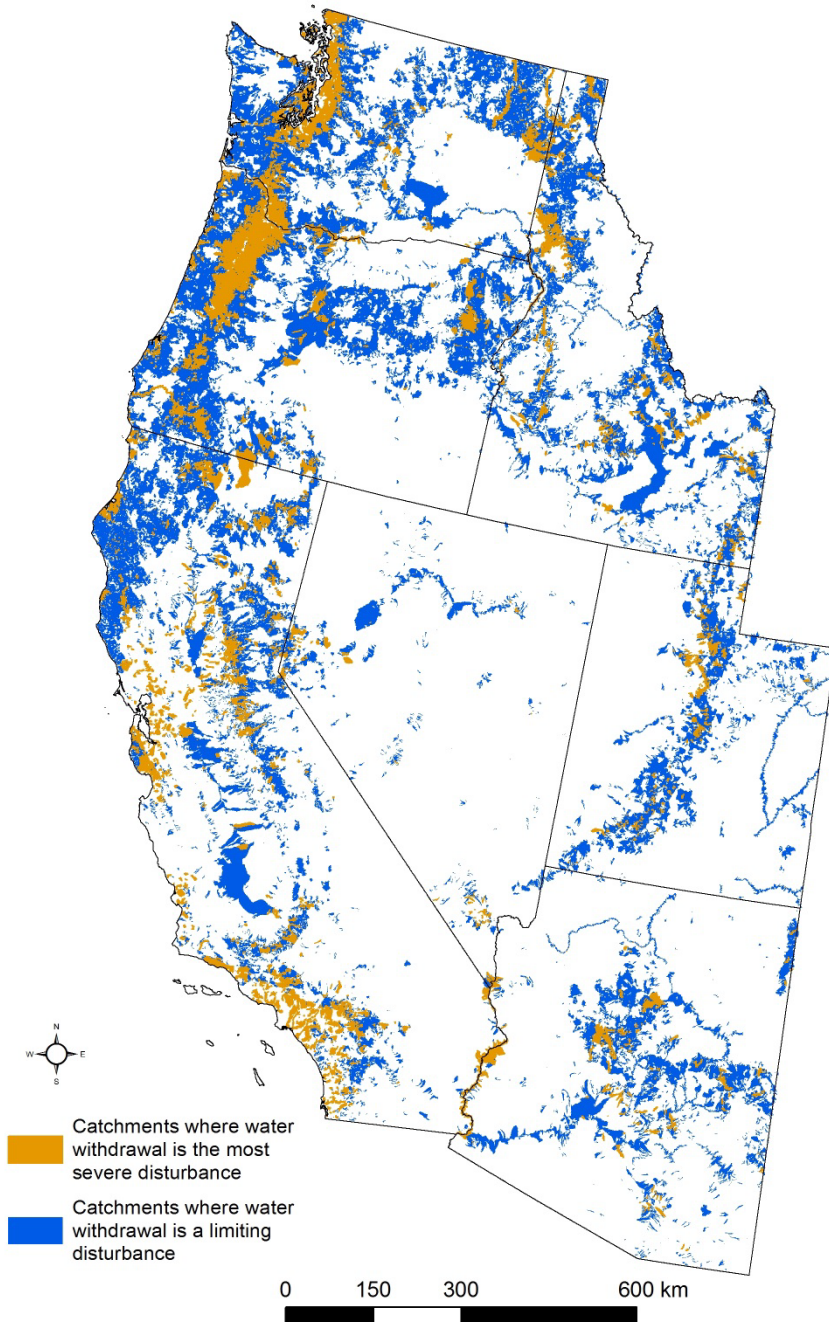
<http://water.usgs.gov/watuse/data/2005/index.html>

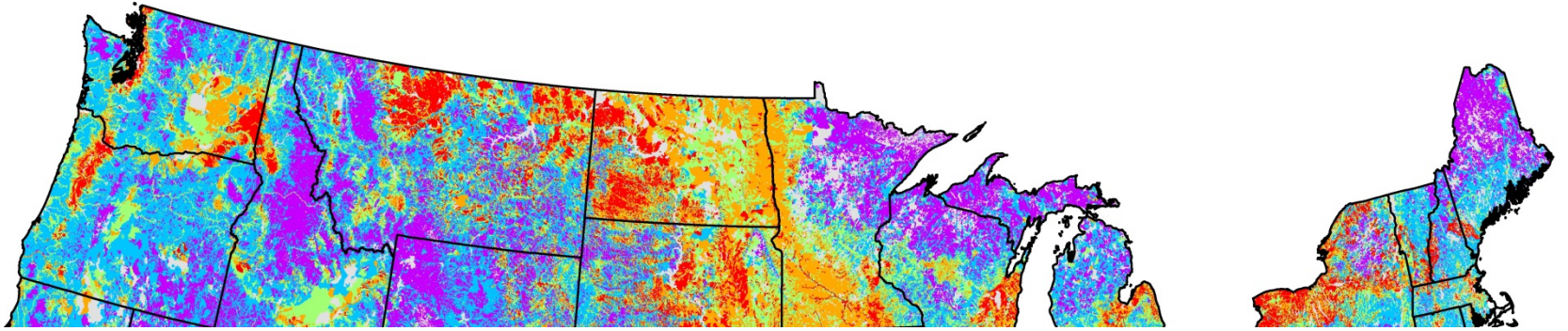
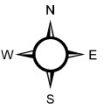


Water withdrawals as a limiting or severe disturbance to fish habitat

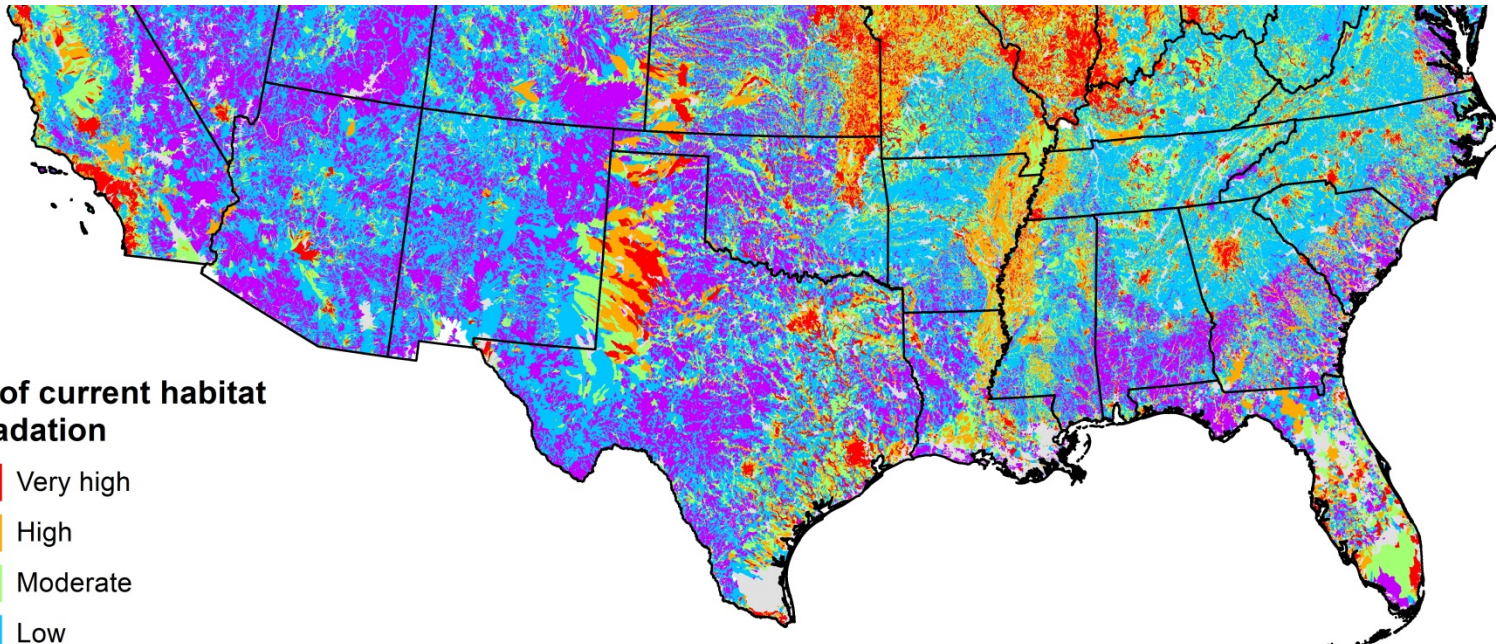
Limiting disturbance: Takes scores away from best available condition, 5's

Severe disturbance: Puts scores in two lowest condition classes, 1's or 2's



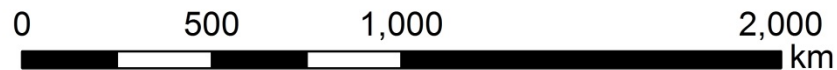


Is anyone using the Assessment?

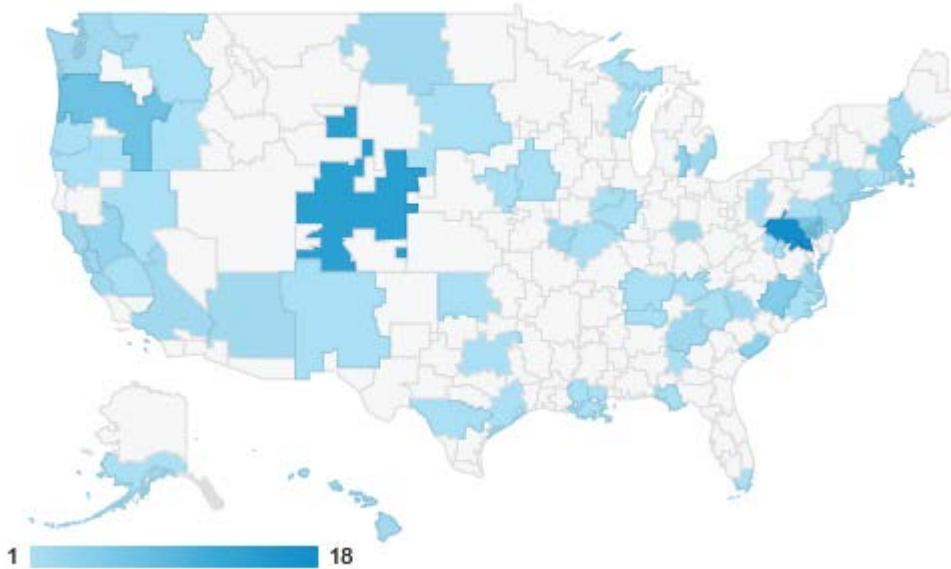


Risk of current habitat degradation

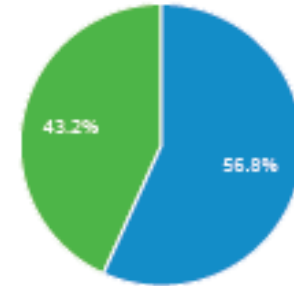
-  Very high
-  High
-  Moderate
-  Low
-  Very low
-  Not scored



NFHP Data Viewer Accesses in **September 2015** 185 sessions, 142 users



New Visitor **Returning Visitor**



Traffic From .gov Domain

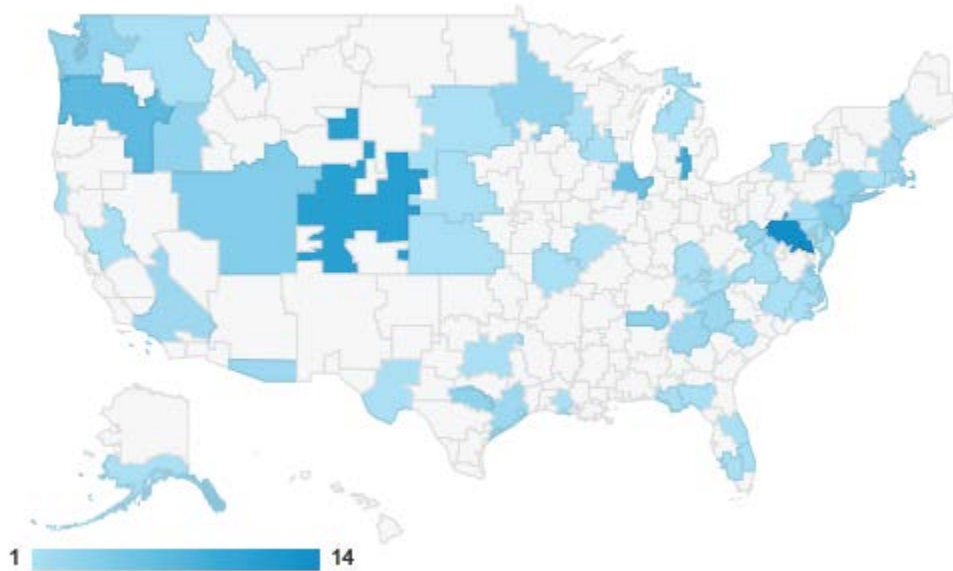
Service Provider

- u.s. geological survey
- the national oceanic and atmospheric administration
- national wetlands research center united states geological surv
- u.s. environmental protection agency
- us department of the interior
- u.s. fish and wildlife service irm/bfo hq
- alaska state government
- arizona state government
- level 3 communications inc.
- noaa-boulder

Traffic From .edu Domain

Service Provider

- north carolina state university
- michigan state university
- university of michigan school of natural resources and environme
- university of missouri-columbia
- auburn university
- binghamton university
- clemson university
- east carolina university
- george mason university
- georgia dept. of technical and adult education



NFHP Data Viewer Accesses in

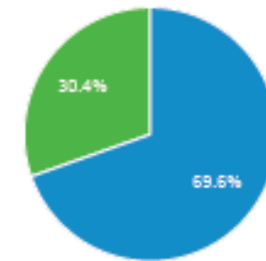
September 2016

*Only 2010 info available
(2015 data not available)*

181 sessions, 148 users

Sessions by User Type

■ New Visitor ■ Returning Visitor



Traffic From .edu Domain

Service Provider

- michigan state university
- university of nebraska-lincoln
- university of washington
- east carolina university
- james madison university
- minnesota state colleges and universities
- national space science and technology center
- north carolina state university
- state university of new york at buffalo
- texas state university - san marcos

Traffic coming from referrals

Source

- fishhabitat.org
- horizon-systems.com
- callfish.org
- gcmd.nasa.gov
- assessment.fishhabitat.org
- fs.fed.us
- localhost:3000
- psmfc.maps.arcgis.com
- search.usa.gov

Traffic From .gov Domain

Service Provider

- national wetlands research center united states geological surv
- u.s. fish and wildlife service irm/bfo hq
- the national oceanic and atmospheric administration
- us department of the interior
- dhec me ii (me cpe 1000) - cae lan
- u.s. geological survey
- national oceanic and atmospheric administration (noaa)
- u.s. environmental protection agency
- united states geological survey
- usda office of operations



Agencies and initiatives referencing NFHP data and/or scores *Based on a web search conducted in October, 2016*

- EPA
- EPA-StreamCat (NABD, coding to generate stream buffers shared with this group)
- USDA
- US Forest Service
- USGS
- SARP
- Appalachian LCC
- Trout Unlimited
- Eastern Brook Trout Joint Venture
- Atlantic Coastal Fish Habitat Partnership
- Minnesota DNR
- CalFish (A California Cooperative Anadromous Fish and Habitat Data Program)
- Great Lakes Inform, Information Mapping and Delivery System (TNC)
- MI DNR



Agencies and initiatives specifically referencing NABD (National Anthropogenic Barrier Dataset, created in support of NFHP 2015)

Based on a web search conducted in October, 2016

- NASA – Global Change Master Directory
- CEOS – Committee on Earth Observation Satellites
- Oakridge National Laboratory



U.S. DEPARTMENT OF
ENERGY
Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy
Under Contract DE-AC05-76RL01830

PNNL-23778

**The Integrated Basin-Scale
Opportunity Assessment Initiative:
Scoping Assessment for the
Connecticut River Basin**

Final Report

Pacific Northwest National Laboratory
Oak Ridge National Laboratory

October 2014



Specialized data deliveries made by inland assessment team

Federal Agencies/Initiatives

EPA
 IJC
 NOAA
 NOAA Coral Reef Ecosystem Division
 NOAA Pacific Islands Regional Office
 NOAA National Marine Fisheries Service
 USFS
 USGS Middleton
 USGS Missouri Cooperative Fish and Wildlife Research Unit
 USGS Reston
 USGS Ohio Water Science Center
 Fishers and Farmers FHP
 SARP
 SEACAP / SARP
 Southwest Aquatics
 Appalachian LCC
 State Agencies

Universities

Iowa State University
 Kansas State University
 Michigan State University
 Notre Dame
 Penn State University
 Southern Illinois University
 University of California Santa Cruz
 University of Hawaii Manoa
 University of Michigan
 University of Missouri
 University of Montana
 University of Southern Mississippi
 University of Texas at Austin
 University of Wisconsin

Consultants

Cadmus Group
 Downstream Strategies
 Martin Environmental/Sealaska
 Parham & Associates Environmental Consulting, LLC
 Rushing Rivers
 Tetra Tech

Hawaii Department of Health Environmental Planning Office
 Michigan Department of Natural Resources
 Michigan Department of Natural Resources - IFR
 MSUE Michigan Natural Features Inventory
 South Carolina DNR
 Nonprofit

Huron River Water Council
 The Nature Conservancy Eastern Resource Office
 The Nature Conservancy Great Lakes Office



Efforts using NFHP data and/or scores

Direct involvement by inland assessment team

- USGS Aquatic GAP: fish species distribution models nationally
- FishTail, NECSC: mapper showing current habitat condition with changes in climate for 22 states
- NorEast, NECSC: mapper showing stream fish associations with water temperature in 22 states
- FishVis, UMWGLLCC: mapper showing current and future habitat for specific fish species
- Gulf Coast Prairie LCC: map products showing landscape disturbances with locations of priority *Quadrula* species
- Great Lakes Fishery Trust: models of sea lamprey habitat to be used in a barrier removal prioritization project
- Hawaii Fish Habitat Partnership: classification of Hawaiian streams, project to identify high priority conservation areas (Marxan, Zonation)



National Fish Habitat Board Assessment Workshop Summary

Where do we go from here in 2020?

- Option 1
 - Continue with existing assessment strategy - \$300-400K
 - Pros
 - Correct many of the key flaws in data - Add in Hydrology, Stream Temperature and Connectivity
 - Provide new assessment of inland lakes and include reservoir data
 - Provide new marine assessments that include fish data and Great Lakes
 - Add new modules for AK and HI
 - Cons
 - Still may not address all of the acknowledged gaps in current assessment
 - May not address scale issues noted by FHPs
 - Still has potential concerns with missing data



National Fish Habitat Board Assessment Workshop Summary

Where do we go from here in 2020?

- Option 2
 - Update 2015 Datasets with Regional Emphasis - \$300K
 - Pros
 - Ensures that picture remains current with current layers and fisheries data
 - Address a few key needs or issues with assessment at regional level
 - Available data products continue to be provided
 - Cons
 - Does not allow continue refinement and improvement of the assessment
 - Misses opportunities to include new datasets including FHPs
 - May not address scale issues noted by FHPs
 - Still has potential concerns with missing data



National Fish Habitat Board Assessment Workshop Summary

Where do we go from here in 2020?

- Option 3
 - Discontinue National Assessment
 - Pros
 - Lowest cost option annually
 - Cons
 - No provision of or maintenance of data products
 - Strand \$2 million dollars of investment
 - Does not allow continue refinement and improvement of the assessment
 - Misses opportunities to include new datasets
 - Does not address scale issues noted by FHPs
 - Missing data not addressed
 - Will greatly increase develop time when new assessment is needed



Next Assessment Steps

● 2020 Assessment

- Evaluation of sampling methodologies – *ongoing through 2017*
- Aggregation workflow assessment – *ongoing, will be completed by December, 2016*
- Development of adfluvial fish layer – *will begin in October, 2016*
- Identify new landscape variables (e.g. updated SPARROW) – *will begin in October, 2016*
- Habitat data in assessment – *will begin in October, 2016*
- Development of hydrology, temperature and connectivity layers
 - Hydrology – NOAA, USGS and others
 - Connectivity – LCC and FHP work
- Incorporation of FHP layers
- New AK spatial framework



Thank You!

Gary E. Whelan

Michigan DNR

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517-284-5840



Visit www.fishhabitat.org
for more information

