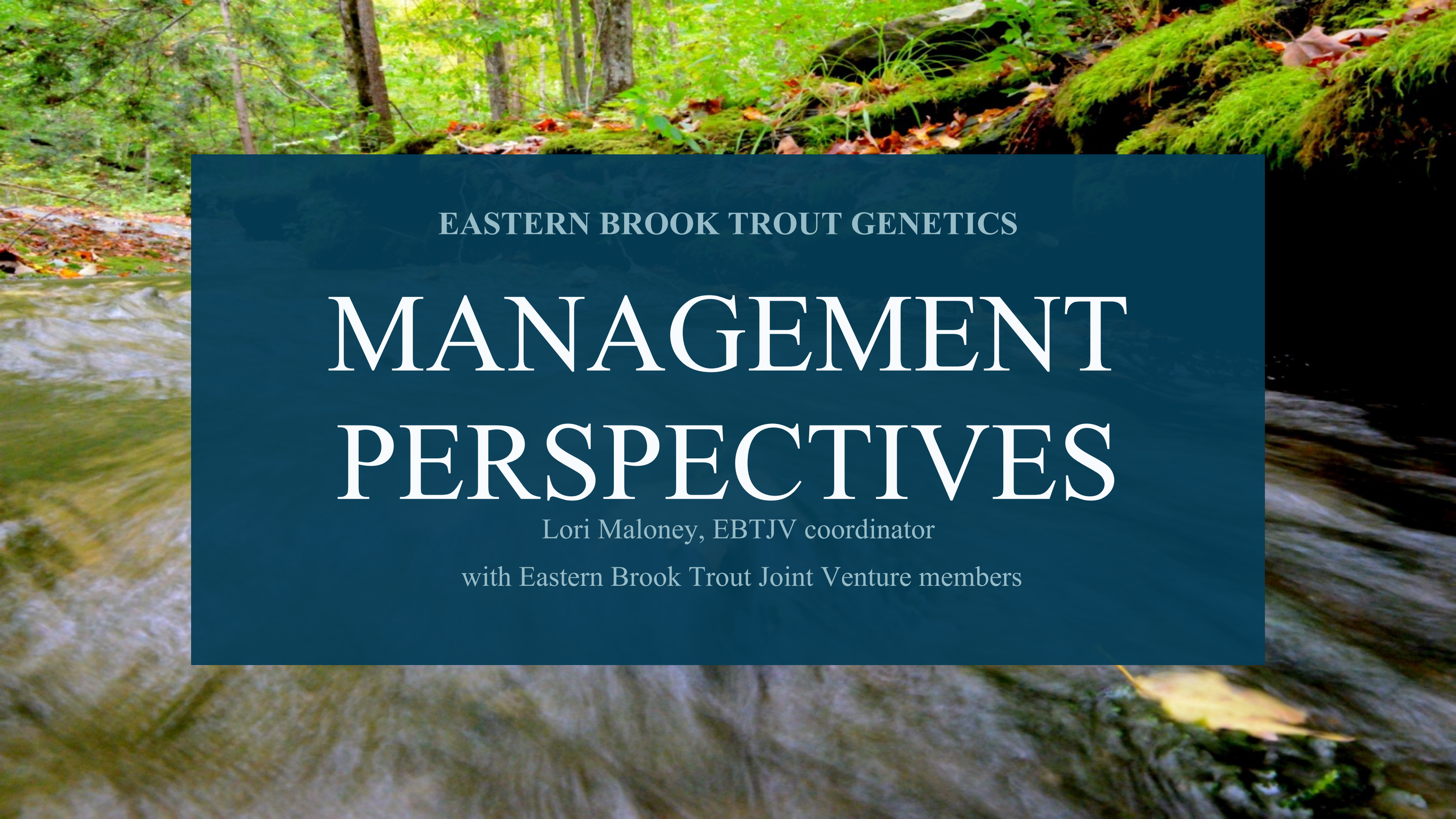


EASTERN BROOK TROUT GENETICS

MANAGEMENT PERSPECTIVES

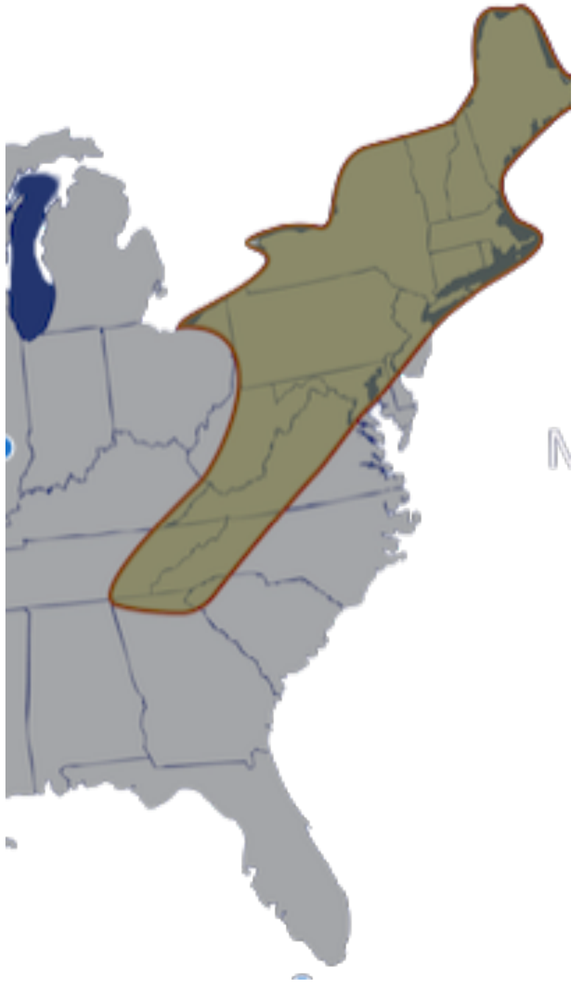
Lori Maloney, EBTJV coordinator

with Eastern Brook Trout Joint Venture members

There's a lot going on up here. Adding additional genetics information is something we need to do, not only for information gathering and having better knowledge of the fish that we're managing, but also to **help guide us into a future that we know is changing**.

MERRY GALLAGHER, NATIVE FISH

CONSERVATION BIOLOGIST, MAINE DFIW



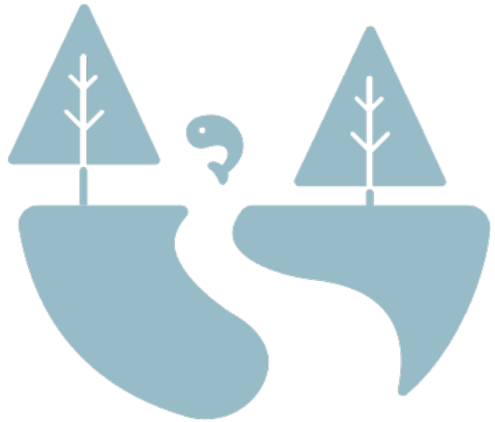
EBTJV’s vision: “healthy coldwater systems with fishable brook trout populations throughout their historic eastern geographic range.”

Mount Tom, in Tioga County, after logging, in 1907
Pennsylvania Department of Conservation and Natural Resources

What are the biggest threats to brook trout?

...and how can genetics help?

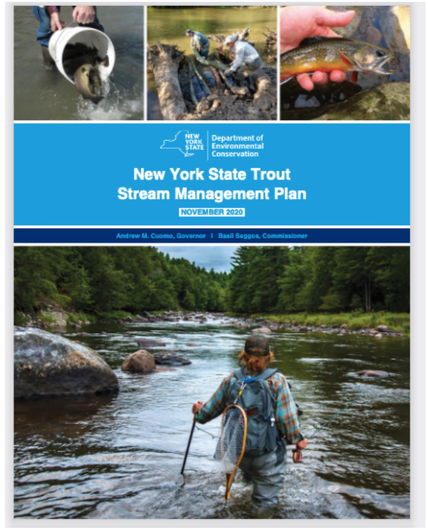
EBTJV's key conservation actions

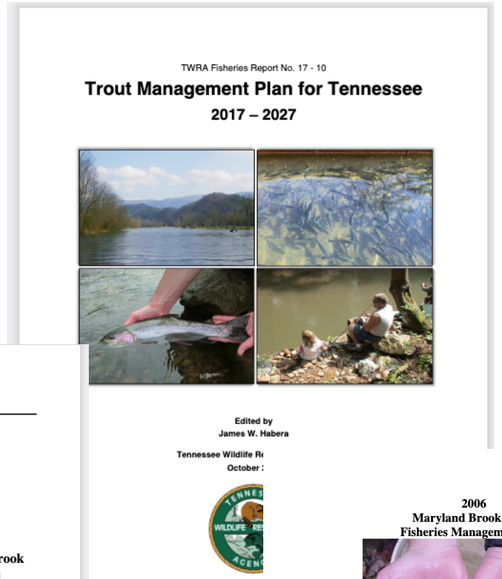


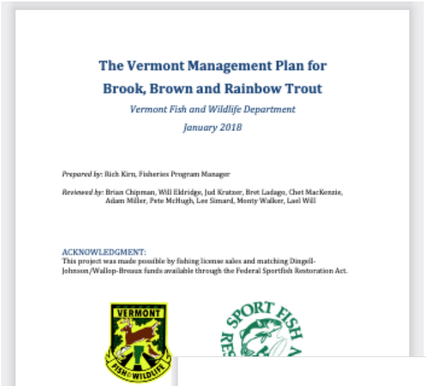
(wild brook trout)

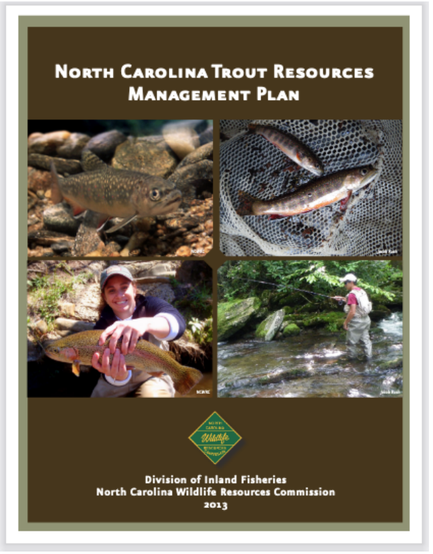
1. Increase recreational fishing opportunities
2. Conserve best of the best
3. Restore and reconnect suitable habitats
4. Conserve genetic diversity
5. Conserve life history strategies
6. Minimize threats

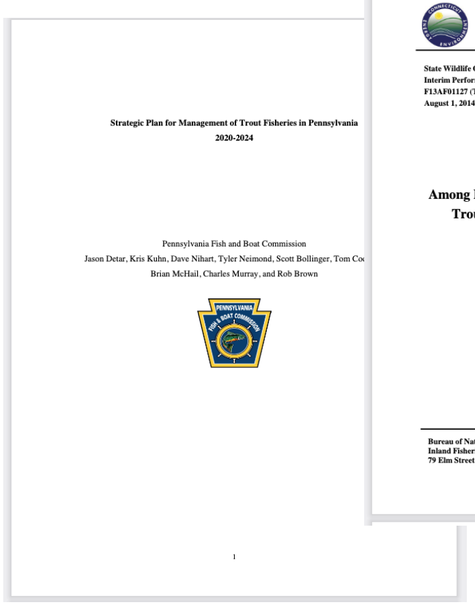
State management plans

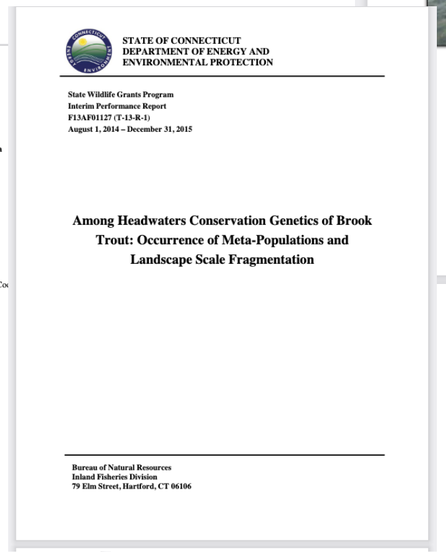


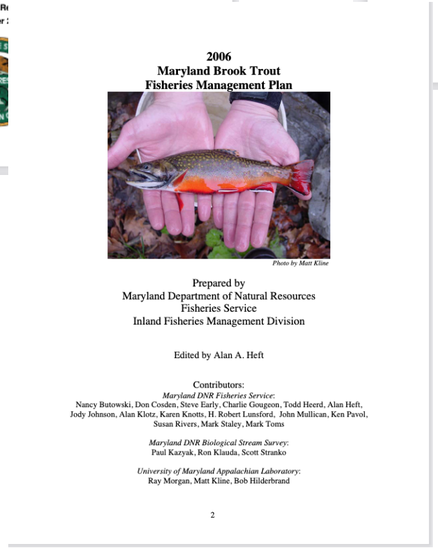


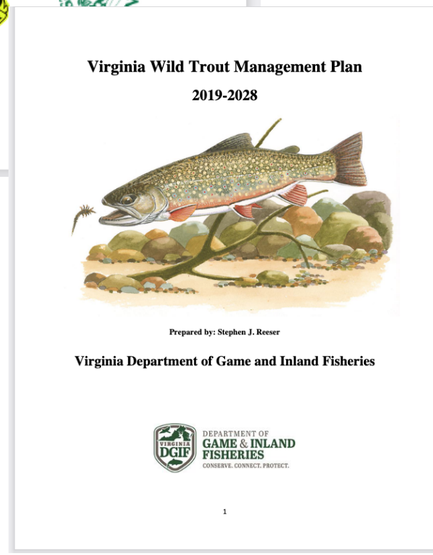


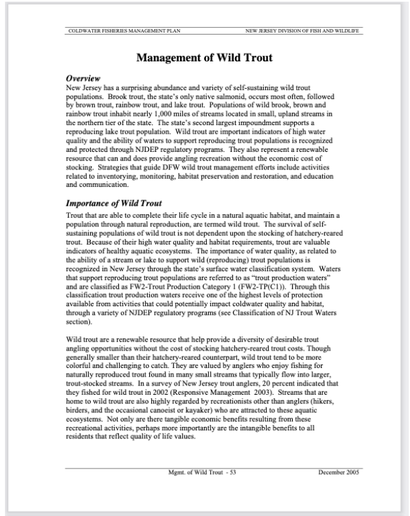












> Continued protection of existing Southern Appalachian Brook Trout populations, and the restoration of those extirpated populations, can only be achieved if managers have a firm understanding of the genetic variance associated with the species.

NORTH CAROLINA WRC

Getting started

How are the EBTJV states currently using genetics?

What do the brook trout managers want to know?

Understanding genetics is absolutely essential to brook trout management. We don’t have enough data to know what is OK and not OK to do, so we take a conservative approach.

John Magee, Fisheries research coordinator, New Hampshire Fish and Game Department


101 questions
WEMAYFLY.ORG
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Common themes

WHERE TO START

SOURCE POPULATIONS

UNDERSTANDING INTROGRESSION

UNDERSTANDING THE LANDSCAPE

WHERE TO START

(Welsh, Tuesday am)

UNDERSTANDING INTROGRESSION

(Hallerman and Kazyak, Tuesday am)

SOURCE POPULATIONS

How to best select appropriate source populations for reintroductions

Sourcing for genetic rescue

(Kazyak and Rash, Wednesday am)

(Whiteley, Tuesday pm)

Sunrise Landscape Great Smoky Mountains National Park Gatlinburg TN and Oconaluftee Valley Cherokee NC. WerksMedia for Getty Images, via Canva Pro

> Genetics is a critical piece to brook trout restoration. Without it, it's a dice roll to select the right source population.

JIM HABERA, BIOLOGIST, TENNESSEE WILDLIFE RESOURCES AGENCY

Sunrise Landscape Great Smoky Mountains National Park Gatlinburg TN and Oconaluftee Valley Cherokee NC. WerksMedia for Getty Images, via Canva Pro

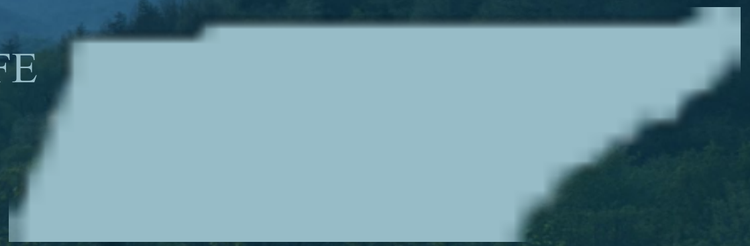
UNDERSTANDING THE LANDSCAPE

(Coombs, Tuesday pm)

Sunrise Landscape Great Smoky Mountains National Park Gatlinburg TN and Oconaluftee Valley Cherokee NC. WerksMedia for Getty Images, via Canva Pro

Genetics is key to making sure you have the information on where unique populations are. Without it, you might not even know they are there.

JIM HABERA, BIOLOGIST, TENNESSEE WILDLIFE RESOURCES AGENCY



Other questions

…many related to using genetics to assess or monitor conservation project outcomes

Other questions

How do we communicate the use and value of genetics to the general public?

Can genetics help communicate or justify the need to RETAIN barriers?

Genetics as an ENDPOINT itself

What does the genetic landscape look like?

How do various stressors and management practices affect genetic diversity?

Conserve genetic diversity of wild brook trout populations

*Jake Rash, NCWRC; https://www.youtube.com/watch?v=VEEN7dZ_wyE

Genetics as an ENDPOINT itself

(i.e. protect the brook trout populations' unique tool boxes*)

Conserve genetic diversity of wild brook trout populations

Genetics to INFORM management and reach conservation endpoints.

(i.e., genetics as a tool we use to help do prioritize, improve, or track effectiveness of all this)

Increase recreational fishing opportunities

Conserve best of the best

Conserve life history strategies

Restore and reconnect suitable habitats

Minimize threats

Thank you

INPUT FROM

NAT GILLESPIE
US Forest Service

JOHN MAGEE AND DIANNE TIMMINS
New Hampshire Fish & Game

JACOB RASH
North Carolina WRC

MERRY GALLAGHER AND MATT LUBEJKO
Maine DGIF

COREY PELLETIER
RI Department of Environmental Management

JIM HABERA AND SALLY PETRE
Tennessee WRA

MATT SELL AND DAN GOETZ
Maryland DNR

LEE SIMARD
Vermont DNR

MATT KULP
National Park Service

SETH COFFMAN, SETH MOESSINGER,

ABBY MCQUEEN AND

DUSTIN WICHTERMAN
Trout Unlimited

MIKE BEAUCHENE AND BRIAN ELTZ
Connecticut DEEP

ADAM KAUTZA
Massachussetts DFW

Jason Detar
Pennsylvania FBC

DAVE KAZYAK AND STEVE FAULKNER
USGS

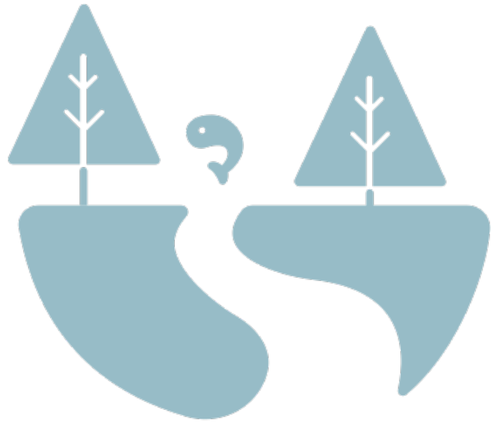
ROSS SHRAMKO AND SHAWN CROUSE
New Jersey DEP

SARAH BAKER
Georgia Wildlife Resources Division

SCOTT CRAIG and CALLIE MCMUNIGAL
USFWS

STEVE PERRY
EBTJV

EBTJV's key conservation actions



1. Increase recreational fishing opportunities for wild brook trout
2. Conserve and/or increase habitats that support robust wild brook trout populations
3. Restore and reconnect suitable habitats adjacent to robust wild brook trout populations
4. Conserve genetic diversity of wild brook trout populations
5. Conserve unique wild brook trout life history strategies (e.g., lacustrine, large river, and coastal populations)
6. Minimize threats to wild brook trout populations (e.g., degraded water quality, invasive species, altered hydrologic regimes)

NOT CURRENTLY ENGAGED IN GENETICS WORK

RECENT PROJECTS ARE LOCAL IN SCOPE, OR IN PLANNING STAGES

ENGAGED IN GENETICS WORK IN-DEPTH INCLUDING LANDCAPE-WIDE BASELINE