







# Stream Smart Crossings...

Maintain fish and  
wildlife habitat



while protecting  
roads and public  
safety





Begun in 2011 as the brain-child of Barbara Charry of Maine Audubon and Steve Koenig of Project SHARE





# Based on the USFS Stream Simulation Design Approach

## Stream Sim

- 5-day training held 2x/year
- Heavy on engineering concepts

## Stream Smart

- Distilled Stream Sim to basic principles
- Accessible to wider audience
- Variety of training opportunities

U.S. Department  
of Agriculture

Forest Service

National Technology  
and Development  
Program

7700—Transportation  
Management

0877 1801—SDTDC

May 2008



## **STREAM SIMULATION: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings**





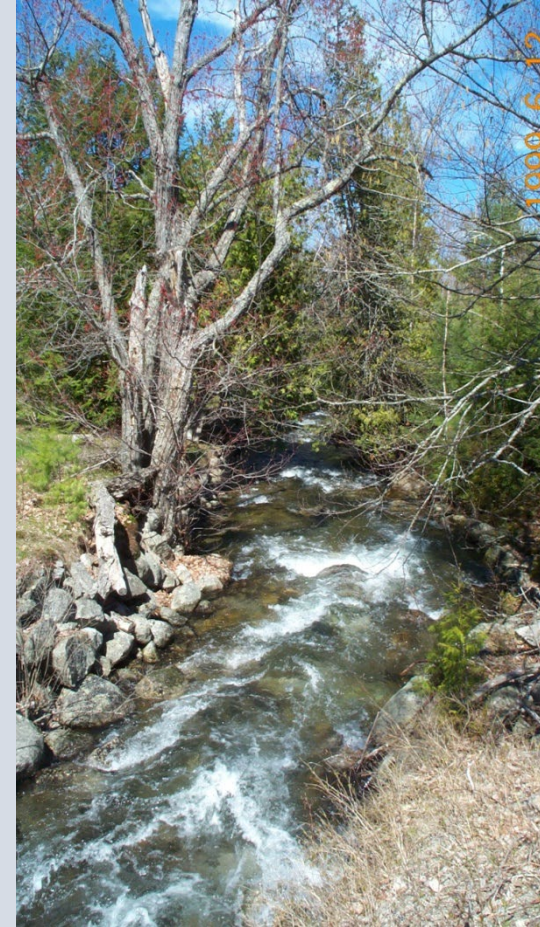
# Rules of Thumb (4 S's)

**S**pan the stream

**S**et elevation right

**S**lope and skew match  
stream

**S**ubstrate in the crossing



**The Golden Rule: Let the stream act like a stream**





# Stream Smart Workshops: Phase I – Introduction

- Stream Function and Values
- Regulatory Requirements
- Stream Table
- Funding Opportunities



- Half-Day
- Classroom

**April 25, 2023 – Dover-Foxcroft**  
**April 28, 2023 – Boothbay**





# Stream Smart Workshops: Phase II – 2-Day Field Training

- Stream Smart Refresher
- Field Surveys
- Preliminary Design



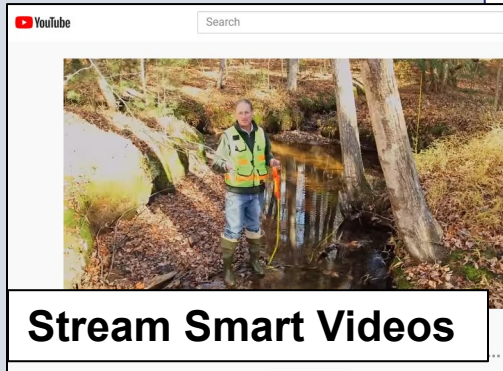
- Two Full Days
- Classroom + Field
- Hands-On

**Not Scheduled Yet  
Usually in October**

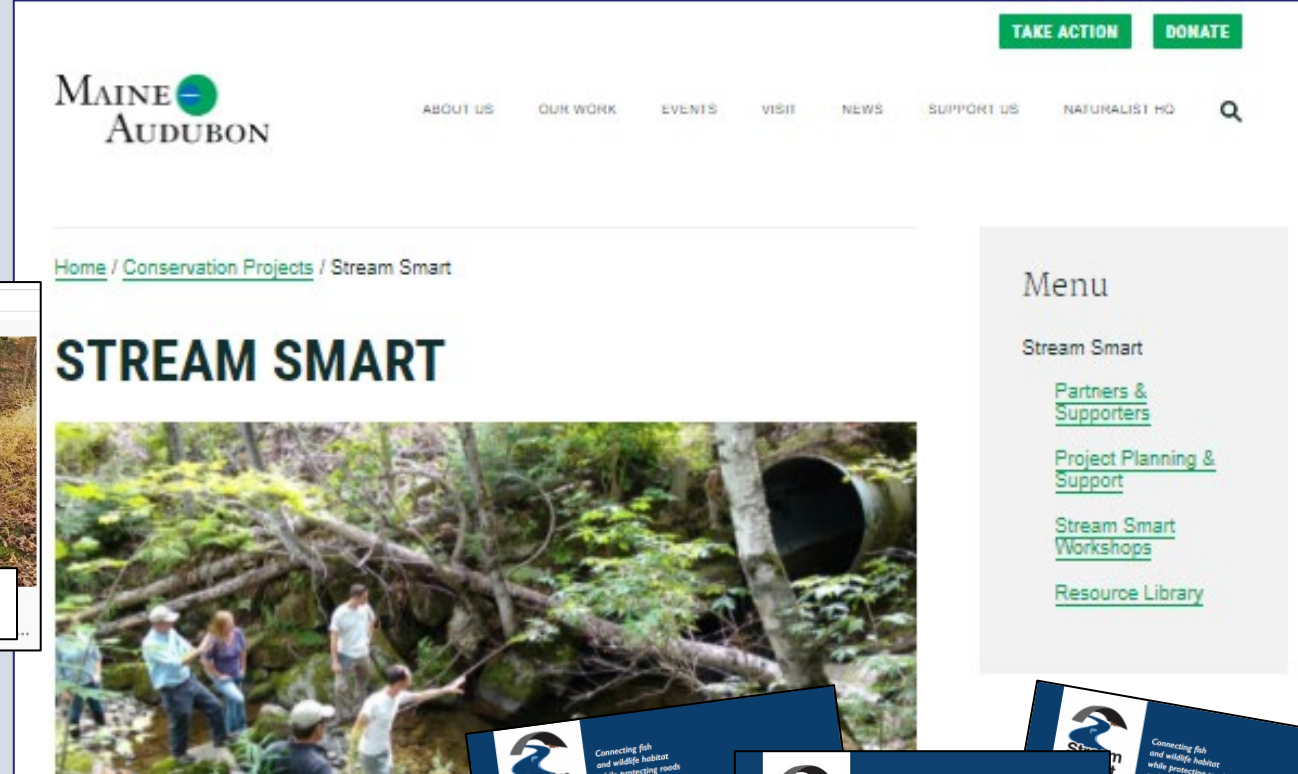




# StreamSmartMaine.org



Stream Smart Videos



Stream Smart Workshops



Stream Smart Handouts



# Audience

- Forest Products Industry
- Municipalities
- Natural Resource Agencies
- Land Trusts
- Contractors & Consultants
- Engineers & Surveyors
- UMaine students
  - Forestry
  - Engineering



More diverse than it used to be...



Not just  
implementers, it's  
also funders,  
project managers,  
etc. who need to  
understand







# Stream Smart Goals

**Infrastructure  
and public  
safety**



**Fish and  
wildlife  
passage**







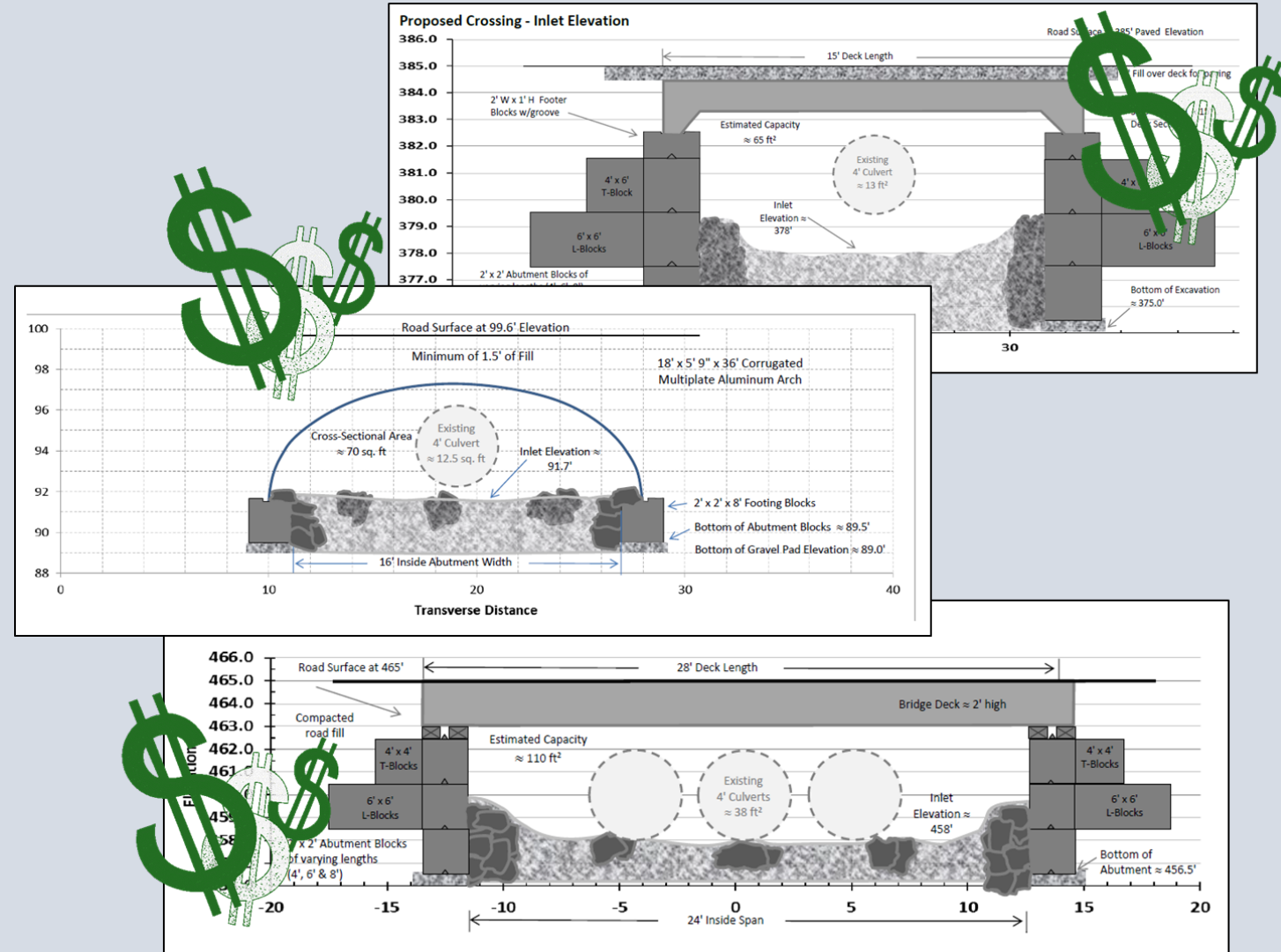
# Constraints

## FUNDING

## CAPACITY



Over 1500  
folks have  
attended at  
least one  
Stream  
Smart  
workshop!







# Financial Assistance Availability/Limits

- Project Proponent (town, private landowner, land trust, etc.)
- Aquatic resources (Atlantic salmon, brook trout, alewife, etc.)
- Expected improvement (miles of habitat restored, access to ocean, access to ponds, etc.)
- Location in the state
- Other available funds (rarely cover all costs, usually cost share)
- Depends on fund availability in a particular year
- **REQUIRE STREAM SMART DESIGN!**







# Financial Assistance

## Some Sources

- NRCS Regional Conservation Partnership Program (RCPP)
- NOAA grant funds
- USFWS Partners for Fish and Wildlife
- Maine Natural Resource Conservation Program (MNRCP)
- Maine Municipal Culvert Upgrade Grant Program\*
- Maine Emergency Management Agency – BRIC grant funds
- Others (Trout Unlimited, Atlantic Salmon Federation, NFWF, etc)



Town – Water Bond Project



Private – NRCS funded project





# More Information

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

## Municipal Stream Crossing Grants

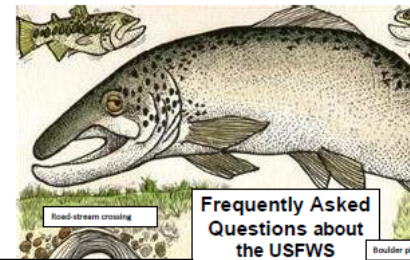
Since 2015, Maine voters have approved a total of four bonds that fund the upgrade and replacement of stream crossings throughout Maine. These monies fund DEP's competitive grant program that matches local funding for the upgrade of municipal culverts at stream crossings to improve fish and wildlife habitats, reduce flooding, and increase community safety.

### Project Stats

**\$10,700,000.00**  
In grant funding awarded to stream crossing upgrades

**12,172**  
Sum of residences or businesses directly affected by crossing failure

**2.8x**  
Average increase of original crossing widths



### Frequently Asked Questions about the USFWS Partners for Fish and Wildlife Program

**Partners for Fish and Wildlife (PFW) Program?**  
The PFW program is a voluntary program that provides incentives to private landowners to restore

land is eligible for the PFW program. "Private" means land not owned by State or Federal government. Private landowners can be involved in the program as partners but cannot include private landowners, but also national, regional, communities, non-profit organizations, corporations,

**Coordinator:** In Maine, our Coordinator is Fred and 207-902-1571.

**are eligible to be restored?**  
wildlife habitat and has been altered or degraded is

Stream Smart  
StreamSmartMaine.org

Connecting fish and wildlife habitat while protecting roads and public safety.

## FUNDING OPPORTUNITIES for ROAD CROSSINGS

### Replacing Road Crossings

Undersized, perched, and blocked road culverts obstruct the movements of fish and wildlife and also prevent stream processes that are critical to maintaining quality habitat for those species. Undersized culverts can also be less likely to pass heavy storm flows which can damage roads. Replacing road crossings with structures that recreate natural stream conditions benefit fish and wildlife but also helps lower maintenance and safety liabilities shouldered by road owners in the long run.

Stream-smart road crossings remove sediment, large woody debris, and other obstructions that may contribute to stream degradation.

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## TECHNICAL ASSISTANCE for ROAD CROSSINGS

Thanks to our partners, a number of resources are available to provide technical assistance for Stream Smart design and implementation. Some of these resources are limited geographically or by type of assistance, so please see notes within each section for additional information. Partners are listed alphabetically for ease of use.

### Casco Bay Estuary Partnership

PO Box 9300, 34 Bedford Street, Portland, ME 04104  
(207) 228-4059; [cascobayestuary.org](http://cascobayestuary.org)  
Contact: Matt Craig, [matthew.craig@maine.edu](mailto:matthew.craig@maine.edu)

#### Type of Assistance

- Project management, support, fundraising
- Culvert barrier inventory, prioritization, maps
- Tidal restrictions

#### Geographic Area

- Casco Bay Watershed

### Maine Inland Fisheries & Wildlife

[www.maine.gov/ifw/about/contact/departments-directory](http://www.maine.gov/ifw/about/contact/departments-directory)

#### Type of Assistance

- Questions about fish and stream habitat

#### Geographic Area

**Southwestern Maine**

Contact: James Pellerin, Regional Fisheries Biologist  
RR1, 358 Shaker Road, Gray, ME 04039  
(207) 657-2345

**Central Maine**

Contact: Wes Ashe, Asst. Regional Fisheries Biologist  
270 Lyons Road, Sidney, ME 04330-9711  
(207) 547-5316

**Dowry**

Contact: Greg Burr, Regional Fisheries Biologist  
PO Box 220, Jonesboro, ME 04468  
(207) 434-9925

### Maine Forest Service

22 State House Station, Augusta, ME 04333  
(207) 287-1073; [maine.gov/doc/mfs/](http://maine.gov/doc/mfs/)  
Contact: Tom Gilbert, Water Resources Specialist  
[Thomas.Gilbert@maine.gov](mailto:Thomas.Gilbert@maine.gov)

### Problem Culvert Impacts to Fish and Habitat

Traditional undersized or hung round culverts are barriers to fish passage that fragment and degrade streams for native fishes that depend on timely access to different habitat types (i.e. spawning habitat, cold water refuge) and other resources (i.e. food and space). Marshy backwaters often kill trees along the stream, reduce shade, increase water temperature and reduce stream flow which promotes conditions for warm water and invasive fish species.

### Species Focus

NRCS stream restoration benefits a variety of species. Over 50 Maine native fish species will experience increased stream access and positive changes to their stream habitat, particularly native brook trout and sea-run fish species. Non-fish wildlife benefiting from culvert replacement include:

- Freshwater mussels
- Salamanders and frogs
- Aquatic invertebrates
- Turtles

### NRCS Funding Opportunities

NRCS has multiple funding opportunities for Aquatic Organism Passage (AOP):

- "Watershed-scale Approach to Restoring Stream Systems" (WATRSS)
  - Focus area outlined in RED
  - Lead partner The Nature Conservancy
  - Total \$4,900,000 in financial assistance for AOP projects
- State pool for AOP projects
  - Focus area is state wide
  - Annual allocation determined by budget

### NRCS Program Eligibility

NRCS programs assist private landowners. Eligibility requirements vary from program to program. Additional information concerning NRCS programs can be found at [www.me.usda.gov](http://www.me.usda.gov)

### Contact Information

We are interested in discussing stream crossings concerning fish passage or determining other aquatic life please contact you

For more information, go to [StreamSmartMaine.org](http://StreamSmartMaine.org)





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**Let the stream act like a stream**