



Using the CoastWise approach when replacing tidal crossings delivers important benefits for Maine's people and wildlife.

Photo: Matt Craig



Photo: Matt Craig

CoastWise is a training program and resource for anyone with responsibility for planning and building road crossings in tidal wetland areas. Modeled after the statewide Stream Smart program for non-tidal crossings, CoastWise supports coastal Maine communities in building safe road crossings that accommodate the tides, sea level rise, and increasingly powerful storm surge, while fostering a healthy ecosystem.



Well-designed tidal crossings benefit people by reducing flood damage of roads and infrastructure. Birds, fish, and other wildlife benefit when bridges and culverts allow unrestricted movement of water. Photos: Slade Moore

COASTWISE PRINCIPLES

- Know Your Tidal Crossings
- Ask for Advice
- Engage Qualified Engineers
- Encourage Local Participation
- Start with Sea Level Rise
- Identify Low-lying Features of Concern
- Establish Clear Objectives
- Size Crossings for Resilience

Safe Tidal Road Crossings in Coastal Maine

Dependable, safe roads are crucial for supporting the Maine economy, access to critical services, and a way of life valued by residents and visitors. At more than 800 locations along the Maine coast, roads cross tidal waterways and salt marshes. Ninety percent of those crossings show indications that they are too narrow, restricting the ebb and flow of the tides.

Road crossings that restrict tidal flow result in higher maintenance costs, shortened service lives of bridges and culverts, and unplanned road closures that put public safety at risk. Tidal restrictions at road crossings also harm commercial fishing and the ecosystem by impairing salt marshes and other habitats needed by many fish, shellfish, and bird species. The severity of today's tidal restrictions will increase as sea levels rise, particularly when combined with storms and associated flooding. Crossings designed with future resiliency in mind will perpetuate safe crossing conditions and support adaptation of coastal habitats to changing conditions.

New Guidance for Coastal Communities

Designing tidal crossings is fundamentally different from designing freshwater crossings. At tidal crossings, water flow is bidirectional, water level is always changing, and aquatic organisms have different requirements for passing through the crossing. Tidal crossings are often exposed to wind and wave energy, and construction materials must withstand corrosive saltwater. CoastWise offers a process that coastal communities can use to discuss their infrastructure resiliency and ecological goals under various climate scenarios, identify priorities, and move toward design and construction of safe, climate-resilient crossings.

CoastWise Manual Provides Detailed Information

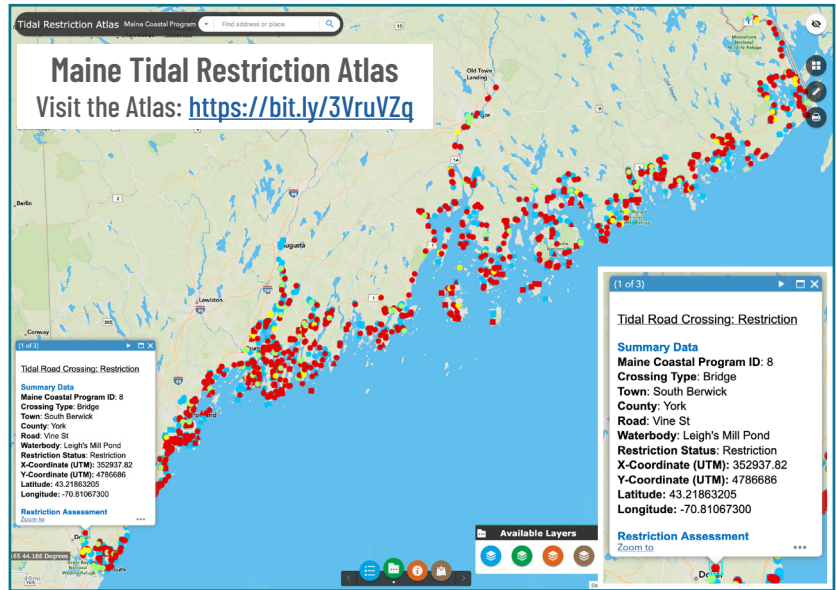
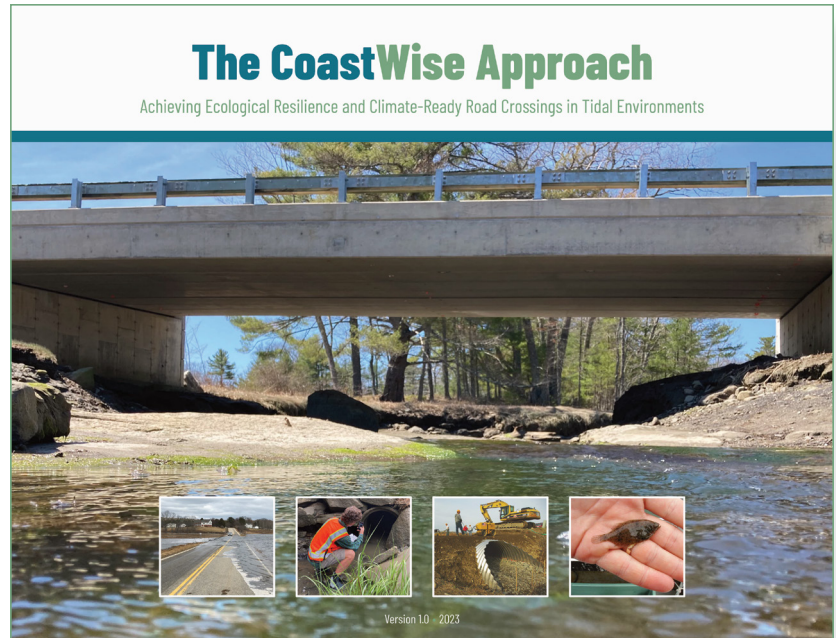
The hundred-page manual *The CoastWise Approach*, released in 2023, is available at <https://bit.ly/3Trx2tz>. It offers detailed technical guidance on how to increase the safety, cost effectiveness, ecological supportiveness, and climate resilience of road crossings over Maine’s coastal wetlands and waterways. The manual is a valuable technical resource for municipal and private engineers, public works directors, land developers, landscape architects, and habitat restoration practitioners along Maine’s coast. For less technical audiences and those working to build community awareness—such as local elected officials, neighborhood associations, conservation commissions, land trusts, and the interested public—the CoastWise manual provides information about tidal wetlands and their importance, and the factors that are changing them.



Construction of a replacement tidal crossing. Photo: Jacob Aman

Online Atlas of Tidal Restrictions

The Maine Coastal Program and partners created the Tidal Restriction Atlas (screenshot shown at right) for communities, road owners, conservation groups, and others who plan for coastal resilience. The Atlas shows where roads, railroads, dams, and other structures cross tidal streams, marshes, and other tidal wetlands.



Typical Phases of a CoastWise Project

1. Preliminary Site Assessment
2. Detailed Field Investigation
3. Establishment of Objectives and Design Criteria
4. Feasibility and Alternatives Evaluation
5. Final Design and Permitting
6. Construction
7. Post-Construction Monitoring

COASTWISE TECHNICAL ASSISTANCE

CoastWise Technical Partners are available to assist with overall project planning, identification of funding options, execution of site assessments, and access to other technical resources and expertise. In addition, CoastWise partners are developing training resources for people with responsibility for tidal crossings.

Contact: Robert (Bobby) VanRiper, Coastal Habitat Restoration Specialist
Maine Coastal Program, Maine Department of Marine Resources
(207) 592-5689

Robert.VanRiper@maine.gov

CoastWise web page: <https://bit.ly/3Trx2tz>

People from the following organizations participated in development of CoastWise:



Partial funding for CoastWise was provided by the National Oceanic and Atmospheric Administration's Office for Coastal Management through Grant # NA21NOS4190033 to the Maine Coastal Program at ME DMR and Grant # NA23NOS4730031 to the Wells Reserve, and leveraged by generous and countless hours of in-kind time from our partners.