


Risk Management for the Herring River Restoration Project





Conservative Risk Management Approach

- 1. Assess risk based on evidence & facts (not perception)**
- 2. Minimize risk through design & operation**
- 3. Address risk effectively, efficiently**
- 4. Ongoing assessment of risk through adaptive management**

An aerial photograph of a lush green landscape. A river flows through the center, with a dam visible on the right side. The surrounding area is densely forested with green trees. The text is overlaid on this image.

Comprehensive, evidence-based approach to risk assessment

- **Decade+ of study—feasibility-concept-plan based on a foundation of peer-reviewed science**
- **FEIS/R: detailed assessment of ecological & social impacts of full restoration**
- **High accuracy data, modeling, monitoring, site assessments to determine extent of restoration & potential impacts**
- **Ongoing assessment, refinement through Adaptive Management**

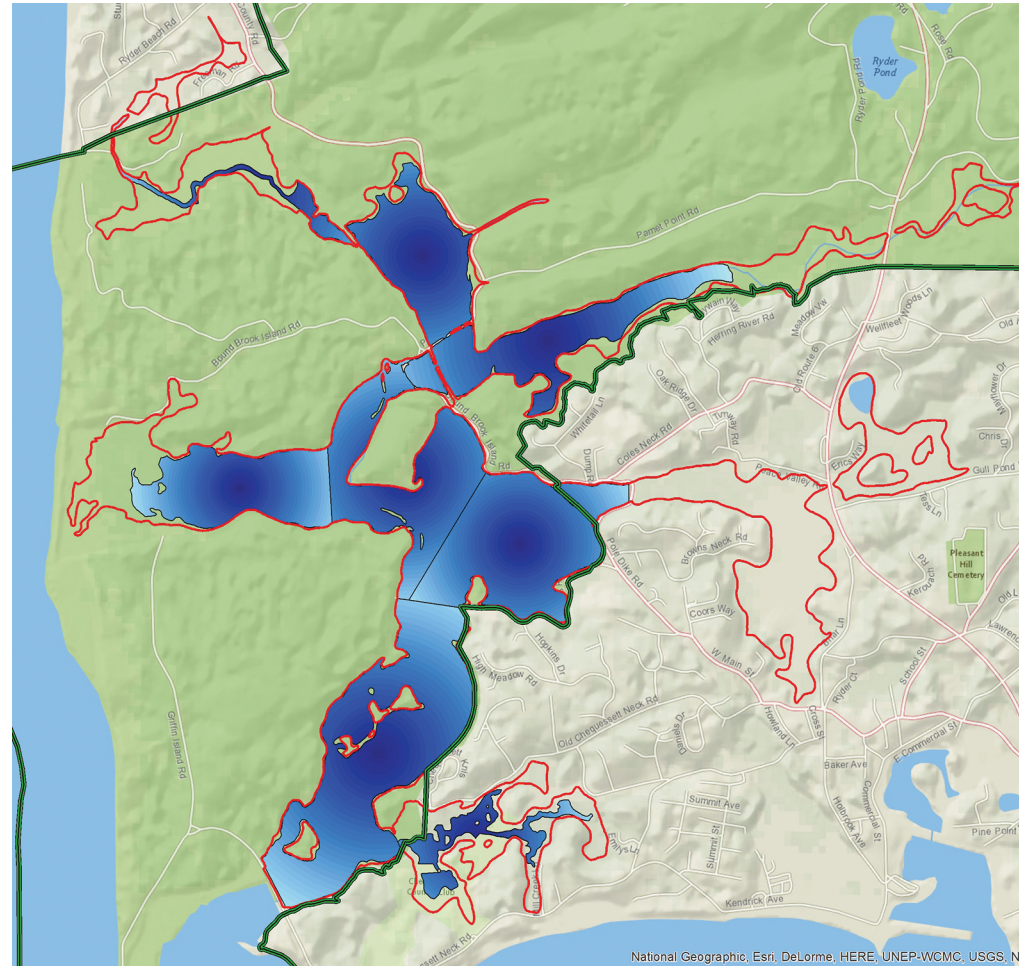
Risk minimized through conservative design & operations

- Chequessett Neck Road bridge - tide gates allow incremental increase in tidal range
- Secondary flood protection provided by dikes & tide gates at Mill Creek & Pole Dike Creek
- Gates can be closed at any time – local control



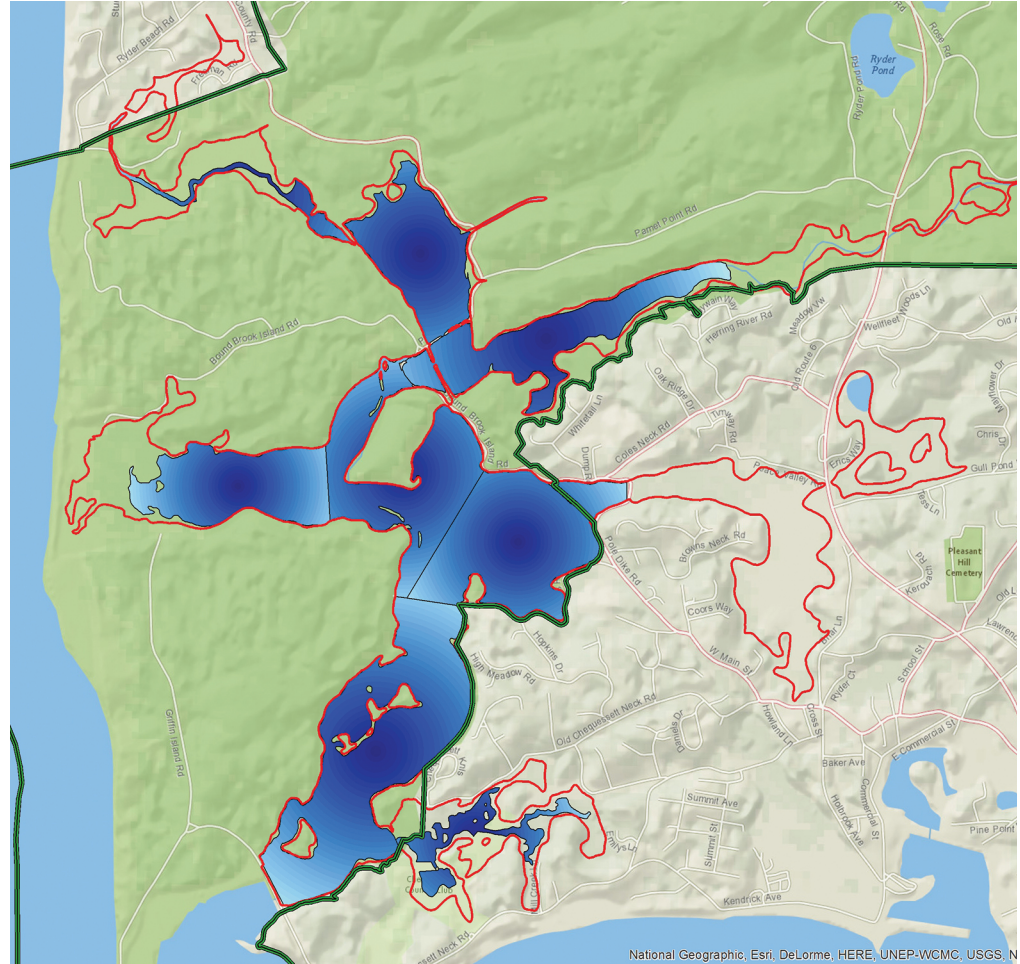
Effects of Phase 1 tidal restoration on private property are very limited:

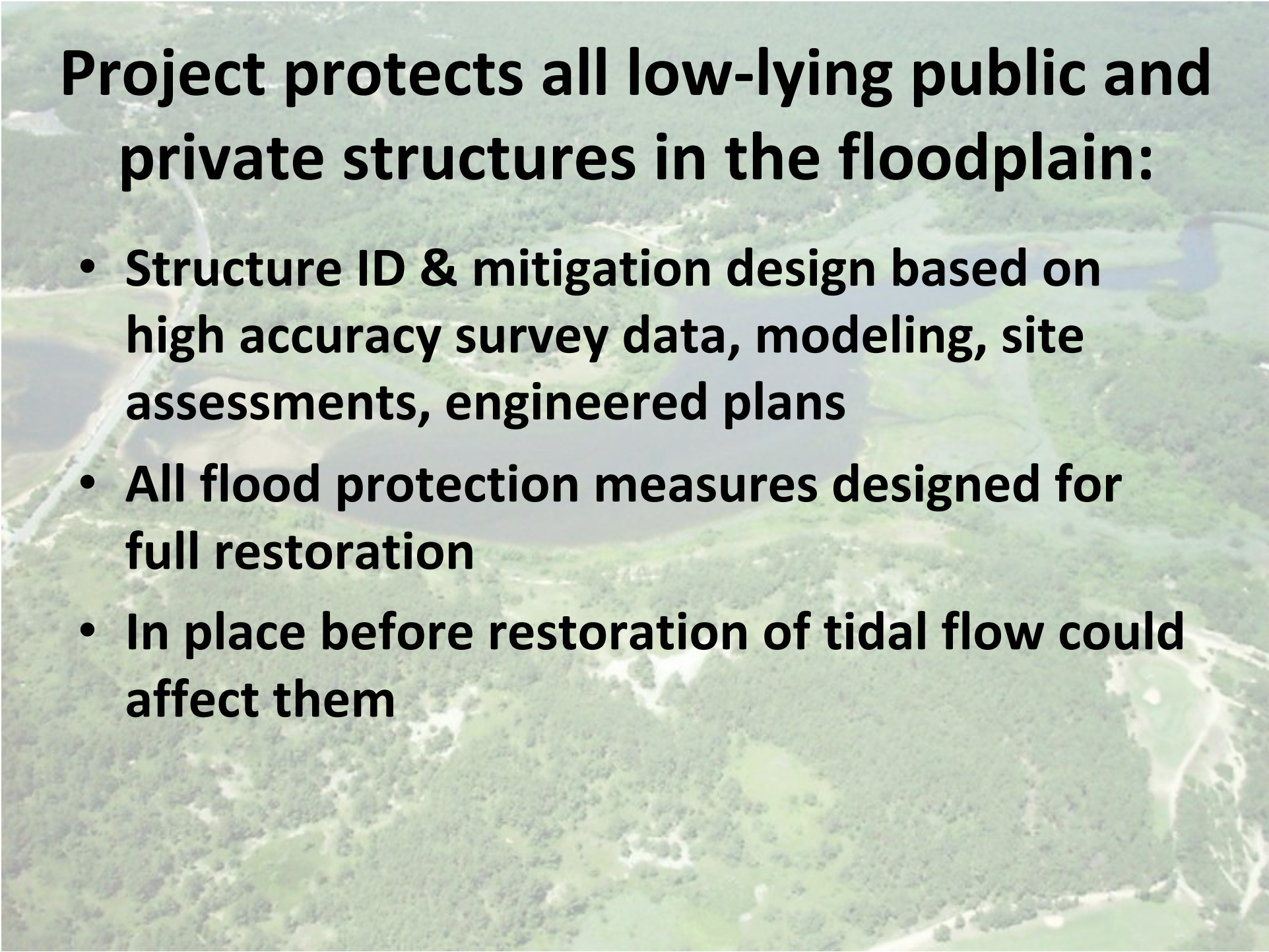
- All public & private property in Phase 1 restoration area regulated wetlands
- 95% (535 ac) of Phase 1 restoration area is owned by the Cape Cod National Seashore



Effects of Phase 1 tidal restoration on private property are very limited:

- **5% (31 acres) of Phase 1 restoration area privately-owned:**
 - 10 ac CYCC
 - 8.7 ac WCT
 - 12.3 ac (2% of Ph 1 restoration area) - portions of 17 res. Parcels)
 - No change in flood insurance requirements



An aerial photograph of a floodplain area. A river or stream flows through the center, surrounded by dense green forest and some cleared areas. The terrain appears to be a mix of natural vegetation and managed land.

Project protects all low-lying public and private structures in the floodplain:

- **Structure ID & mitigation design based on high accuracy survey data, modeling, site assessments, engineered plans**
- **All flood protection measures designed for full restoration**
- **In place before restoration of tidal flow could affect them**

Enhanced coastal resilience further mitigates risk

**Longer term, restored healthy tidal marsh
enhances resilience, flood control function of
floodplain**



Ongoing Assessment - AMP

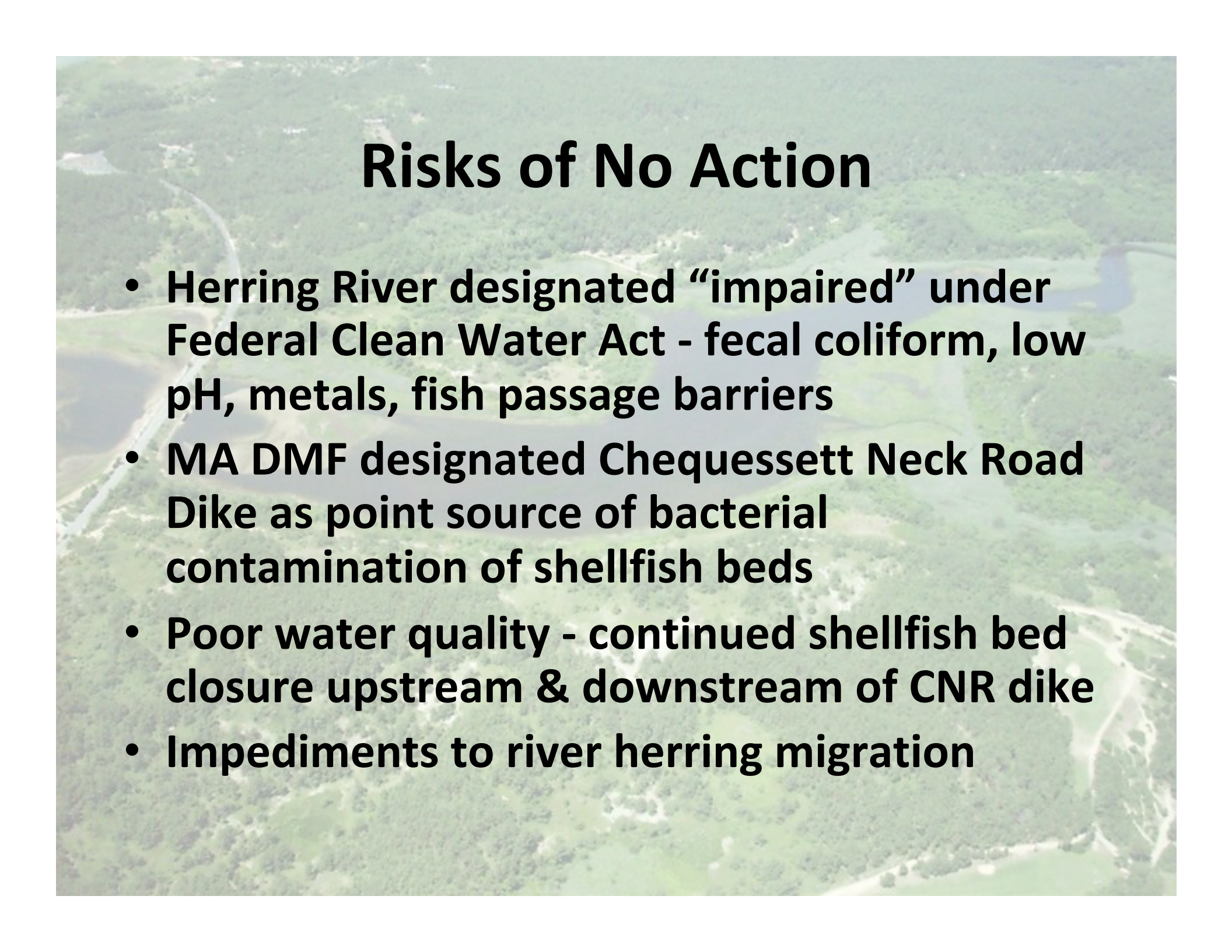
- **Baseline conditions established**
- **Ongoing data collection and refinement of predicted results**
- **Local control and decision-making**
- **AM employed for other large scale restoration efforts**

Herring River Restoration
Project

Wellfleet Town Counsel

“In my opinion, based on the scope of work currently being proposed for Phase 1 of the Project, and the anticipated effects of that work on private properties as set forth in recent studies, it is my opinion that the steps taken by the Project Proponents have greatly reduced the likelihood that the Town will face significant financial liability.”

KP Law, P.C.



Risks of No Action

- **Herring River designated “impaired” under Federal Clean Water Act - fecal coliform, low pH, metals, fish passage barriers**
- **MA DMF designated Chequessett Neck Road Dike as point source of bacterial contamination of shellfish beds**
- **Poor water quality - continued shellfish bed closure upstream & downstream of CNR dike**
- **Impediments to river herring migration**

Risks of No Action

- **Lost estuarine salt marsh functions**
 - critical habitat for fisheries and other wildlife a
 - significant amounts of methane emitted due to lack of tidal circulation)
- **Nuisance mosquito production from stagnant freshwater that cannot drain from wetlands**
- **Lost recreational opportunities that bolster the region's economy and quality of life**
- **Existing conditions involve risk and potential costs to the taxpayers**

Summary

- Risk management & liability protections incorporated into Project design, operations plans, governance
- Very small portion of Phase 1 area involves any potential for liability:
 - 95% CCNS land;
 - 2% on private residential parcels.
 - All land currently regulated wetlands
- All low-lying public & private structures in floodplain protected
- Ongoing AMP and local decision-making
- Contrast low project risk/liability with known risks of no action