# Agenda

1. Introduction to DER
2. Dam Removal Program
3. The State of Dams in Massachusetts
4. Why Remove Dams?
5. Before and After Pictures

# DFG- Division of Ecological Restoration





# Mission Statement and Approach

DER's mission is  to restore and protect rivers, wetlands, and watersheds in Massachusetts for the benefit of **people** and the **environment**.

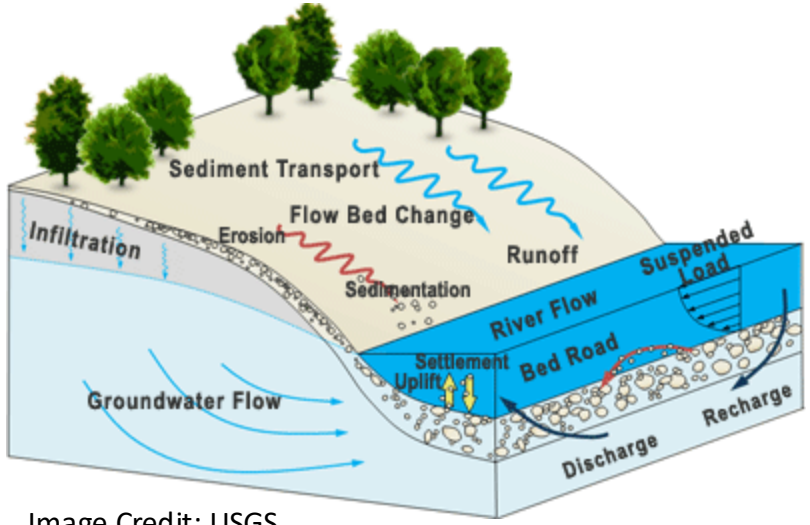



Image Credit: USGS

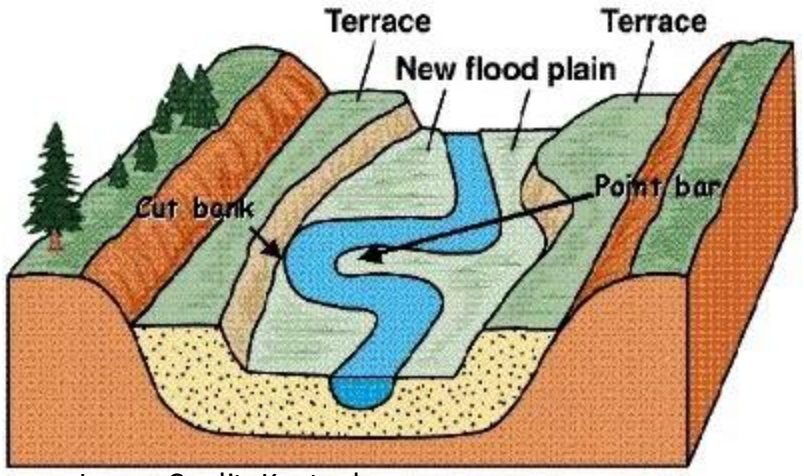



Image Credit: Kent.edu

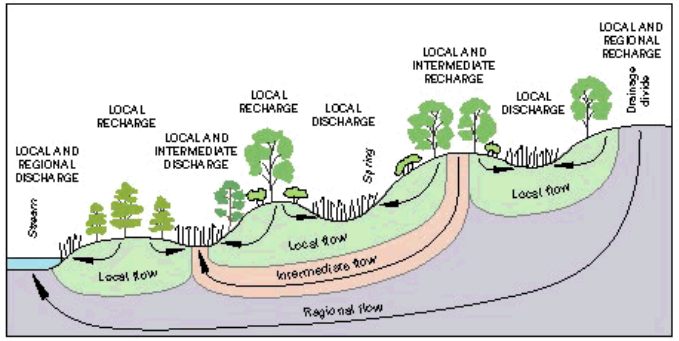



**Figure 22.** Ground-water flow systems. Local ground-water flow systems are recharged at topographic highs and discharged at immediately adjacent lows. Regional ground-water flow systems are recharged at the major regional topographic highs and discharged at the major regional topographic lows. Intermediate flow systems lie between the other two systems. *(Source: Modified from Winter, 1976.)*

Image Credit: USGS

Process Based Approach to Restoration

# DER 3-Branch Programmatic Structure

| | | |
|---|---|---|
| Habitat Restoration Branch | Capacity Building Branch | Technical Services Branch |
| **Dam Removal Program** | Culvert Replacement Program | Engineering Services |
| Wetland Restoration Program | Partnerships Program | Planning Services |
| Cranberry Bog Restoration Program | | |

# Dam Removal Program

**Team**

Chris Hirsch
Joseph Gould
Susie Bresney

**Accomplishments**

- ~70 dams removed
- 90 dams studied
- Reconnected over 350 river miles
- 22 active projects



Armstrong Dam – Braintree Photos DER

Tel-Electric Dam – Pittsfield photo DER

Upper Roberts Meadow – Northampton photo DER

# Dam Removal Program Services

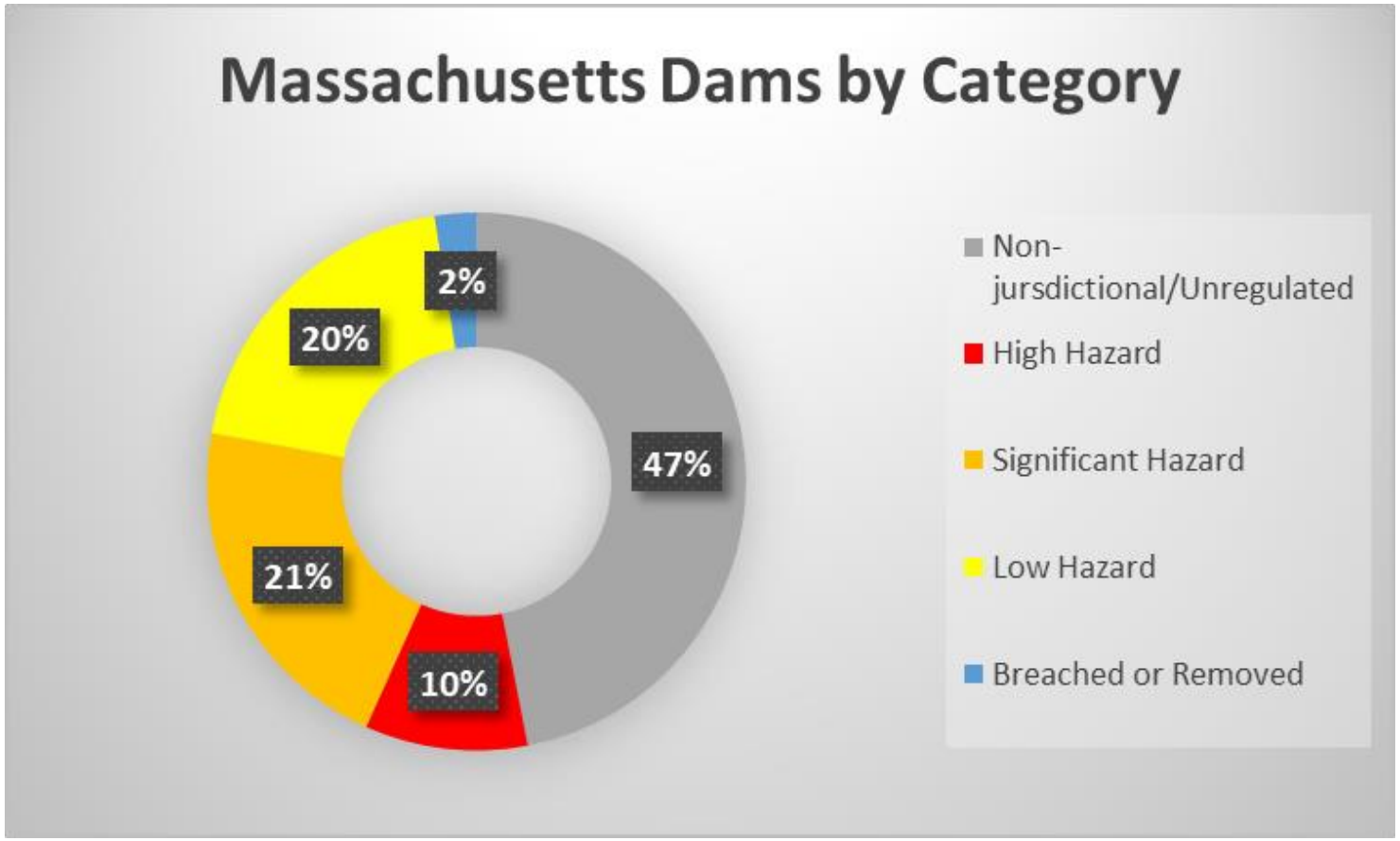
## Dam Reconnaissance

- Feasibility studies for dam owners who are interested in exploring dam removal as an option
- Produces conceptual level design, sediment management recommendation, and cost estimate for removal
- Projects are selected through a competitive RFR

## Priority Projects

- A DER project manager is assigned to assist a dam owner with the planning, permitting, and removal of their dam
- Priority projects are eligible for technical and financial assistance from DER
- Projects are selected through a competitive RFR

# The State of Dams in Massachusetts




Over 3000 dams in Massachusetts

Many were associated with Mills and Factories that went out of business a long time ago

541 Dams (~18%) are in poor or unsafe condition

Source: ODS Inventory Report 4/14/2022

# How Dams Impact Rivers

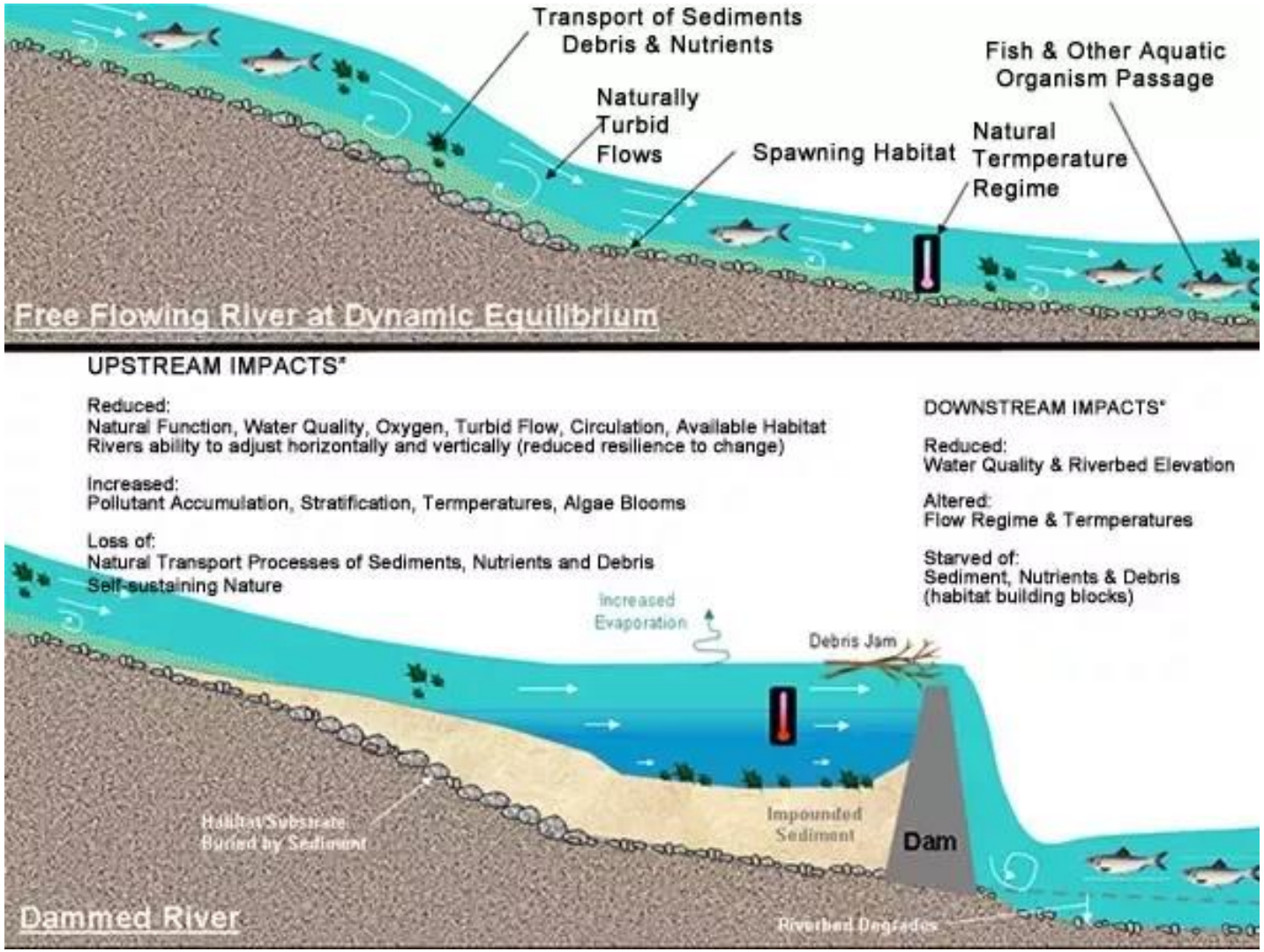


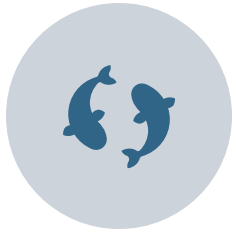

Image Credit : Laura Wildman P.E.

# Benefits of Dam Removal - Ecological

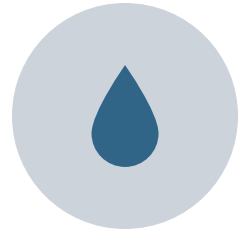
RESTORES NATURAL SEDIMENT TRANSPORT REGIME

RESTORES NATURAL THERMO-REGULATION

INCREASES BENTHIC BIODIVERSITY IN THE IMPOUNDMENT



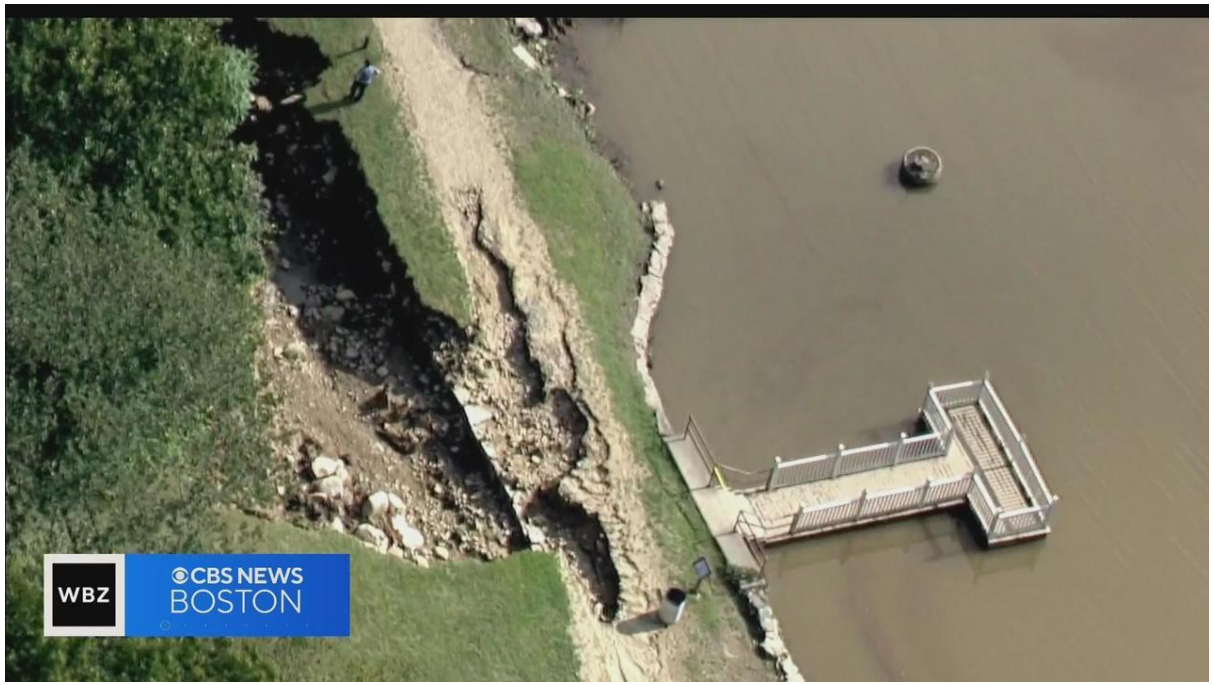
INCREASES HABITAT CONNECTIVITY



IMPROVES WATER QUALITY AND DISSOLVED OXYGEN

# Benefits of Dam Removal – Public Safety

- Reduce Flood Elevations up stream
- Reduce flooding risk downstream
- Protects nearby infrastructure



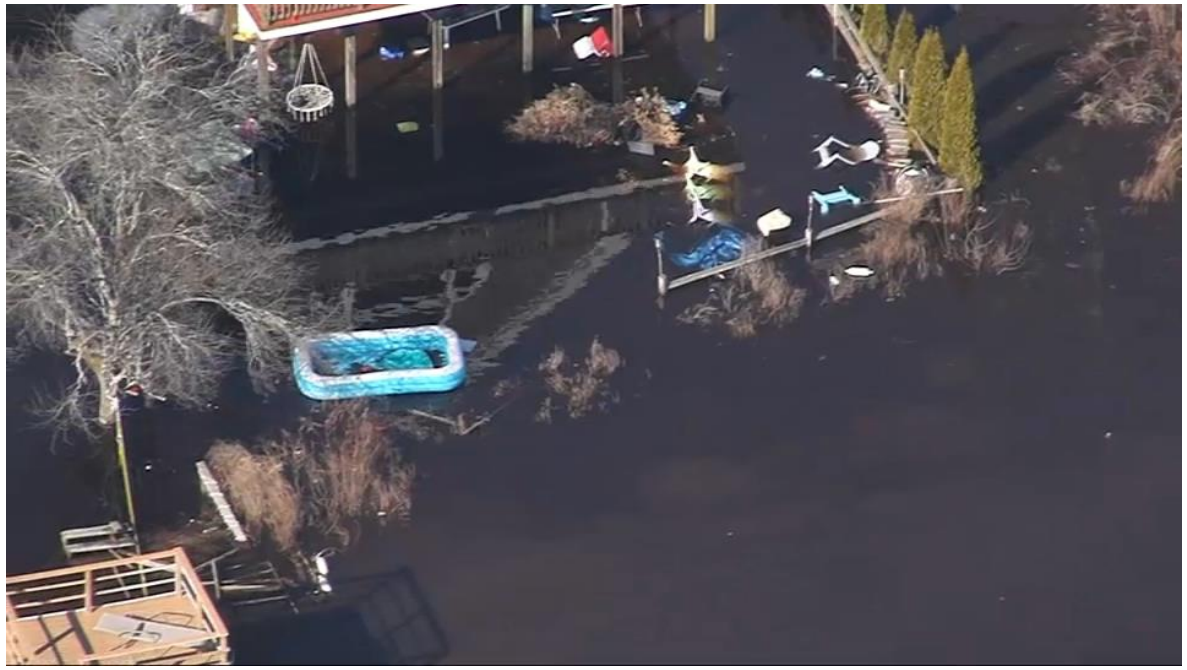

Barrett Park Pond Dam near breach in Leominster Image credit:WBZ Boston

Dam Breach flooded road downstream in Bridgewater Image Credit: WBZ Boston

# Benefits of Dam Removal - Owner

- Elimination of Flood Damage Liability
- Elimination of Attractive Nuisance Liability
- Elimination of Inspection and Maintenance Burden
- Saves money in the long term

Image credit: Rob Goebel, Indianapolis Star



Dam Breach flooded back yards in Bridgewater-Image Credit WBZ Boston

# Before and After Dam Removal Photos

Before and After Dam Removal Photos.pptx

# Thank you!

Questions?

Photo Credit DER