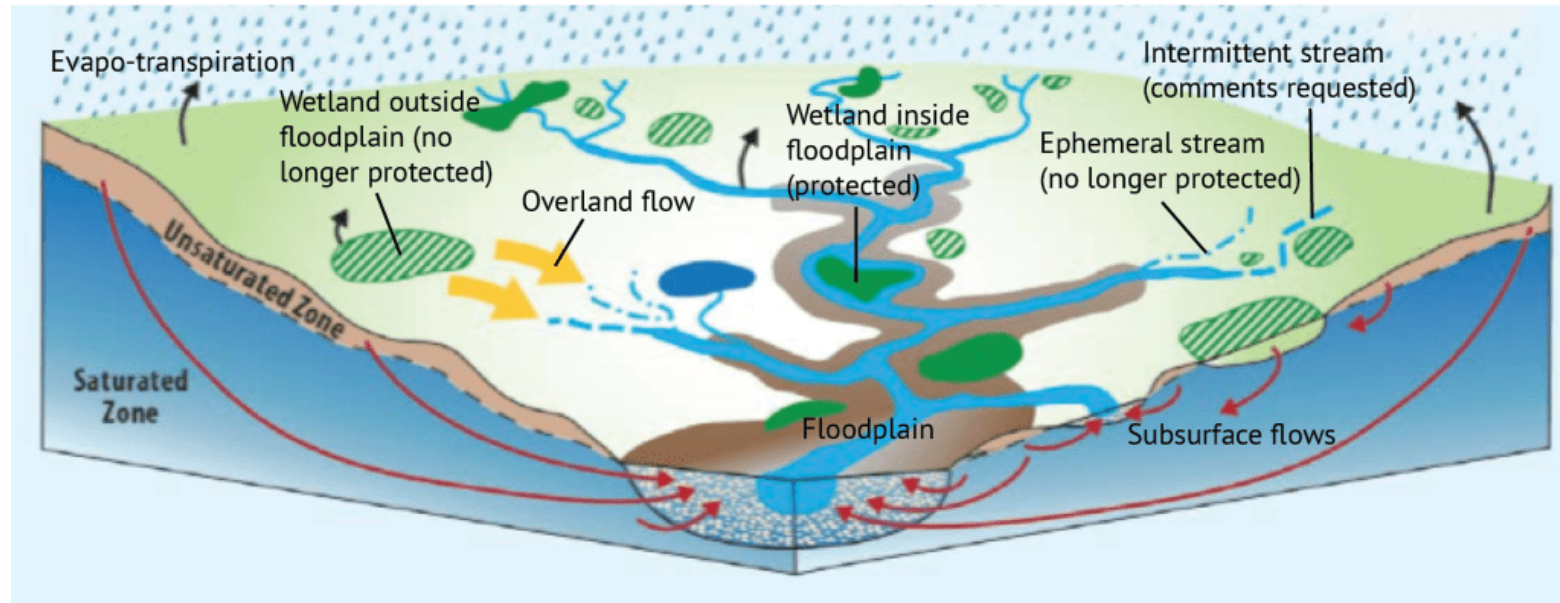




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Watersheds and Floodplains

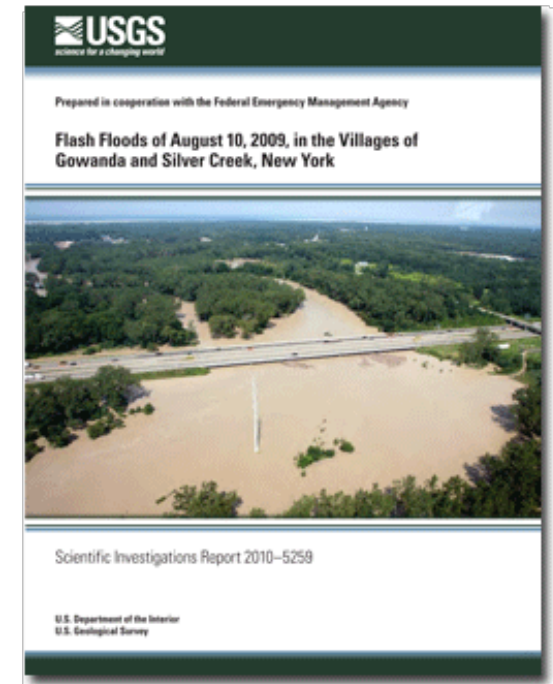
Joanna Panasiewicz, Lake Erie Watershed Protection Alliance (LEWPA)

Shannon Dougherty, NYSDEC Great Lakes Watershed Programs Coordinator

Understanding and Managing Floodplains for Healthy Watersheds and Resilient Communities – November 2022

Lake Erie Watershed Protection Alliance

- Cattaraugus, Chautauqua, and Erie counties joined together after 2009 flood
- Water Resource Board (3 members from each county)
 - Local representative
 - Regional representative
 - Soil & Water Conservation District representative
- Canadian, tribal, state, regional, local, non-profit, academic, and business partnerships



LEWPA Mission

The mission is to foster collaboration and partnerships within the watershed to address regional water quality and quantity concerns and in doing so, protect and enhance our Lake Erie resource.



Education:

- Municipal trainings
- Advisories on available funding and programs
- Public outreach

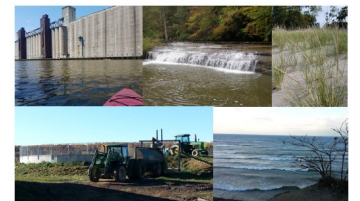
Planning:

- Municipal surveys
- Coordinate partnerships for grants and projects
- Regional Watershed Management Plan

www.erie.gov/wmp

Regional Niagara River Lake Erie Watershed Management Plan - Phase 2

June 2019



BUFFALO NIAGARA
WATERKEEPER



NEW YORK
DEPARTMENT
OF STATE

Project Implementation



NYS Environmental Protection Fund

- Work plans submitted for each county, each year
 - Bacteria monitoring in waterways
 - Reduce nutrient and sediment pollution
 - Address invasive species
 - Fund feasibility studies and pilot projects










Extreme rainfall and flooding are expected to increase across the US in the next 30 years...



Why Local Flood Reports?

Your town regularly reports wastewater discharges. Local flooding doesn't always match up with flood plain maps. Tap into the power of your community to track changing flood patterns before they get out of control.

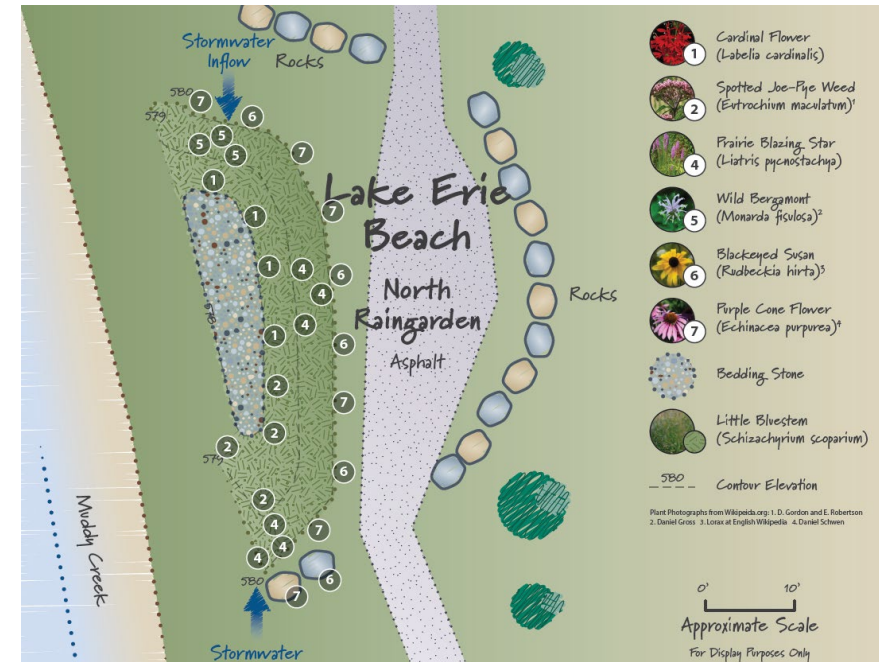


<div><div>Lake Erie Watershed Protection Alliance Environmental Protection Fund Results</div></div>			
54,527 lbs of nutrients		18,209 tons of sediment	
<div> prevented from entering waterways </div>			
8,666 ft	stream and road bank stabilized	74	acres hydroseeded
\$685,850 investment leveraged \$1,435,868 additional funds			
stormwater treated on	240 acres		10 feasibility studies preparing for larger projects
 3,900 ft	streamside buffers planted		54 acres invasive species management 
1,227 boats inspected for aquatic invasive species 			20,000 people educated

Project Implementation

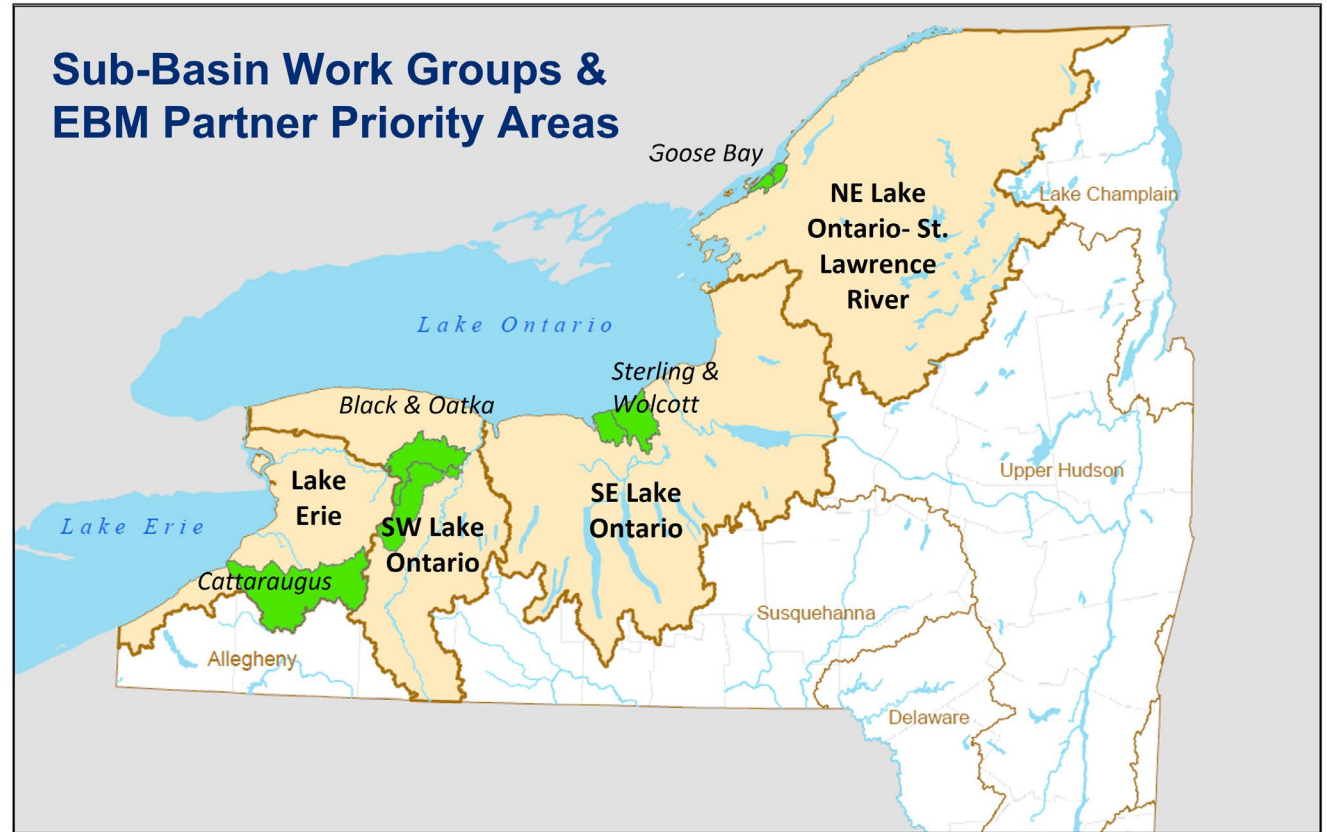
U.S. Environmental Protection Agency

- Nearshore health projects
 - Rain gardens
 - Riparian buffers
 - Floodplain benches
 - Engineered wetland



DEC's Great Lakes Program

- Coordinated science and applied research
- Technical assistance, training & grants
- Community engagement & stewardship
- Facilitate project identification and implementation



GLAA 2030 Goals

1. Reduce or Eliminate Releases of Persistent Toxic Substances
2. Control Sediment, Nutrient, and Pathogen Loadings
3. Prevent and Control Invasive Species
4. Conserve and Restore Native Fish and Wildlife and Their Habitats
5. Enhance Community Resiliency and Ecosystem Integrity
6. Revitalize Local Communities and Economies

Are your Great Lakes interests and concerns included in these goals?



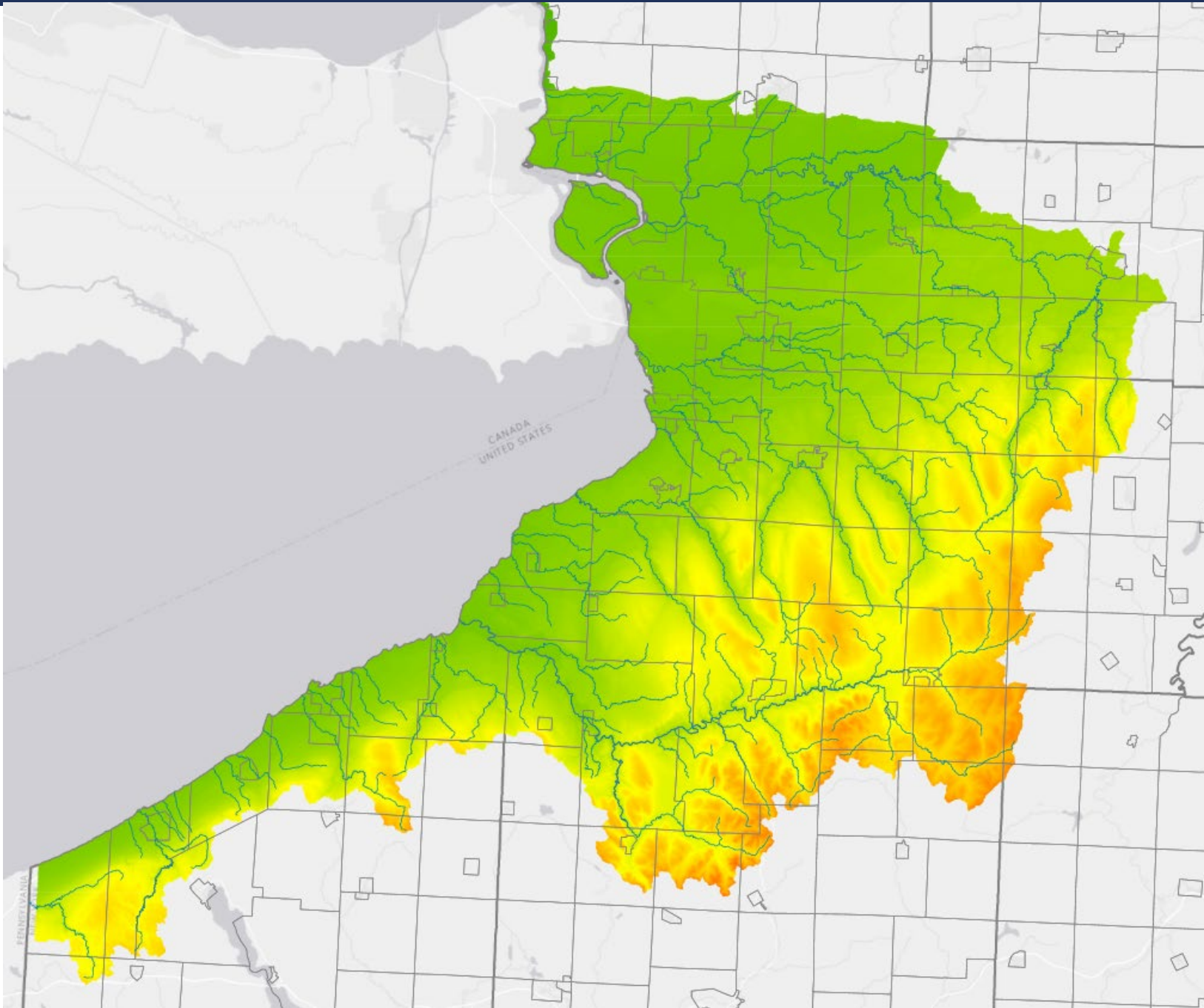
NY's Great Lakes: Watersheds to Floodplains

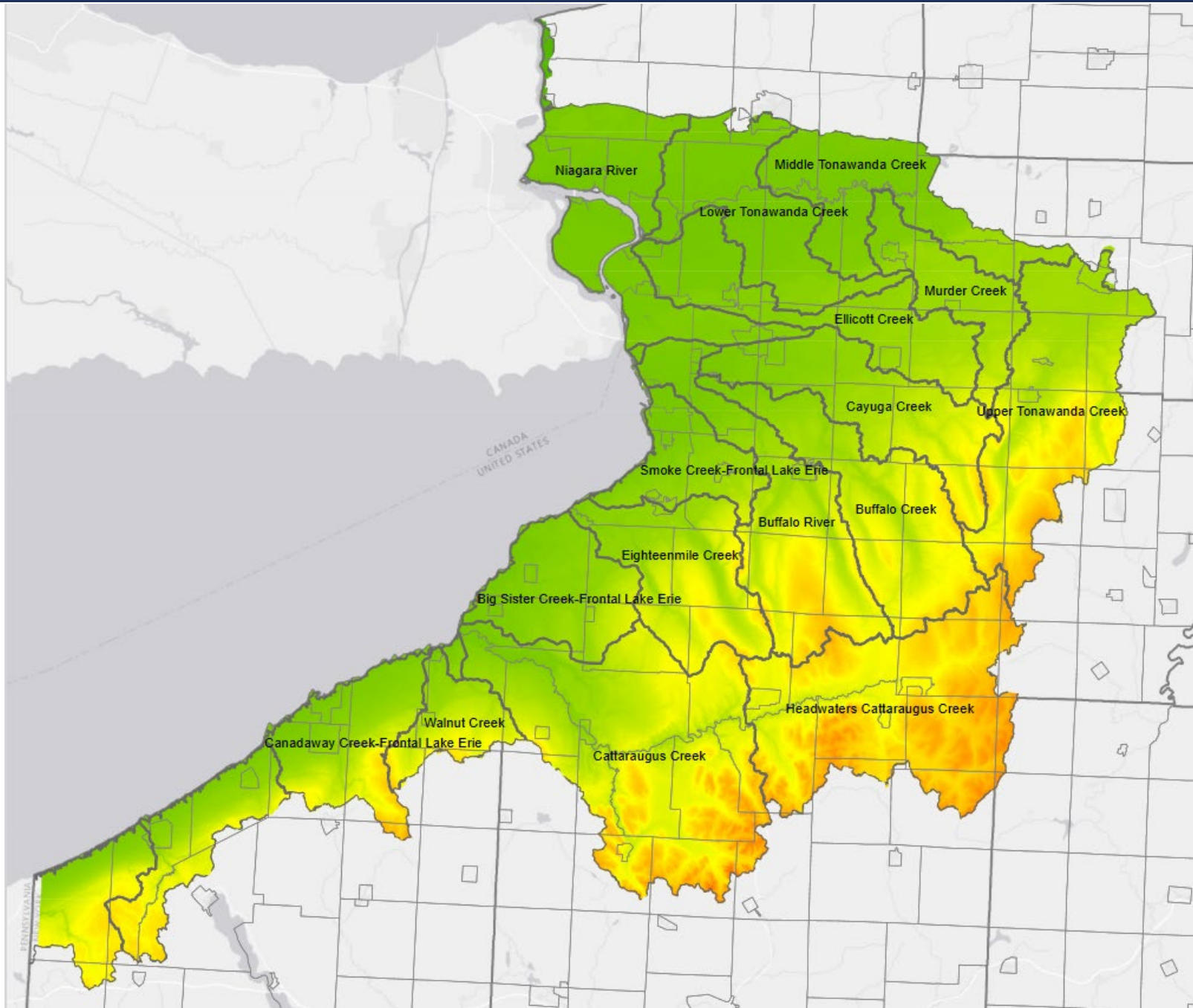


Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



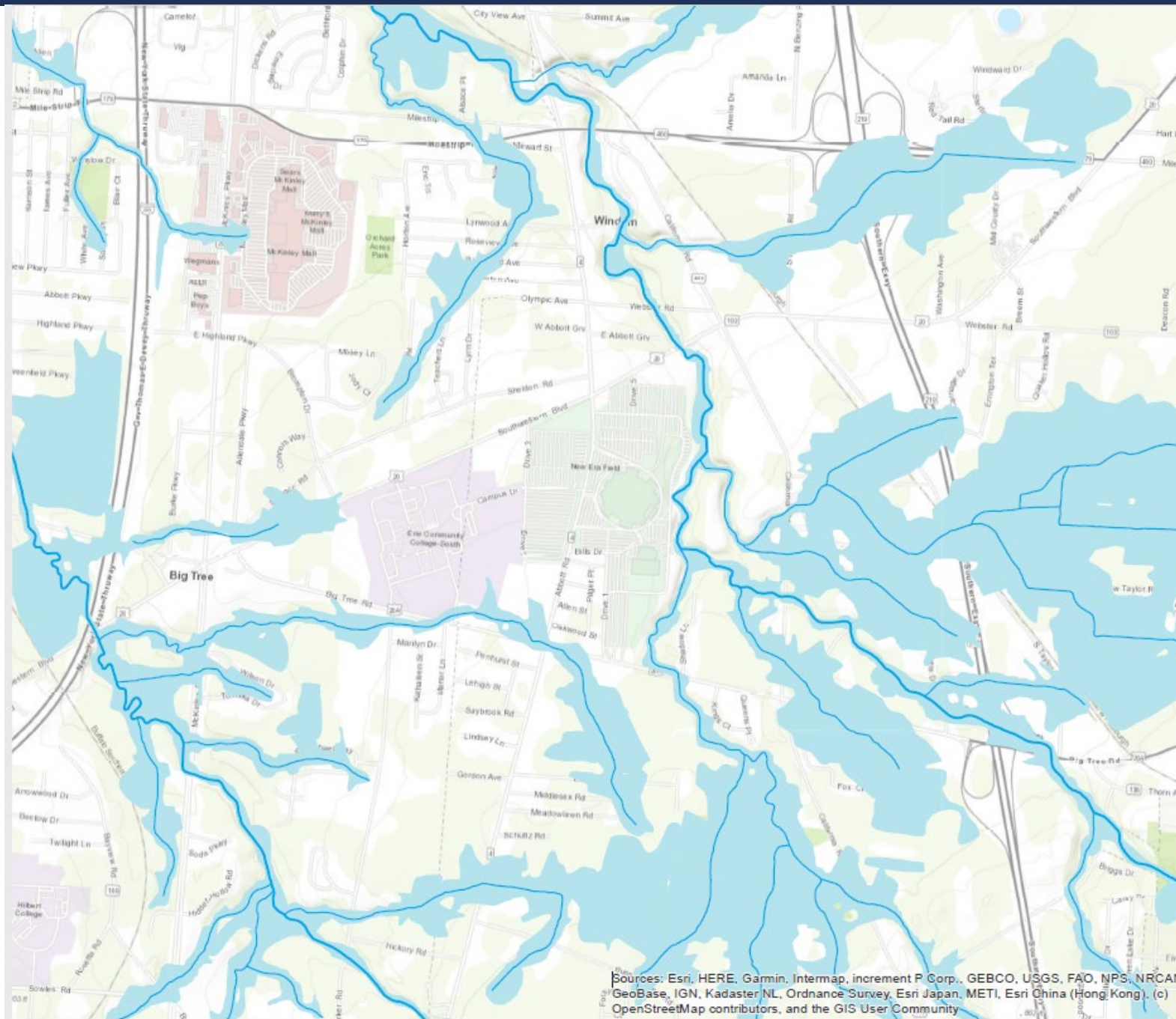
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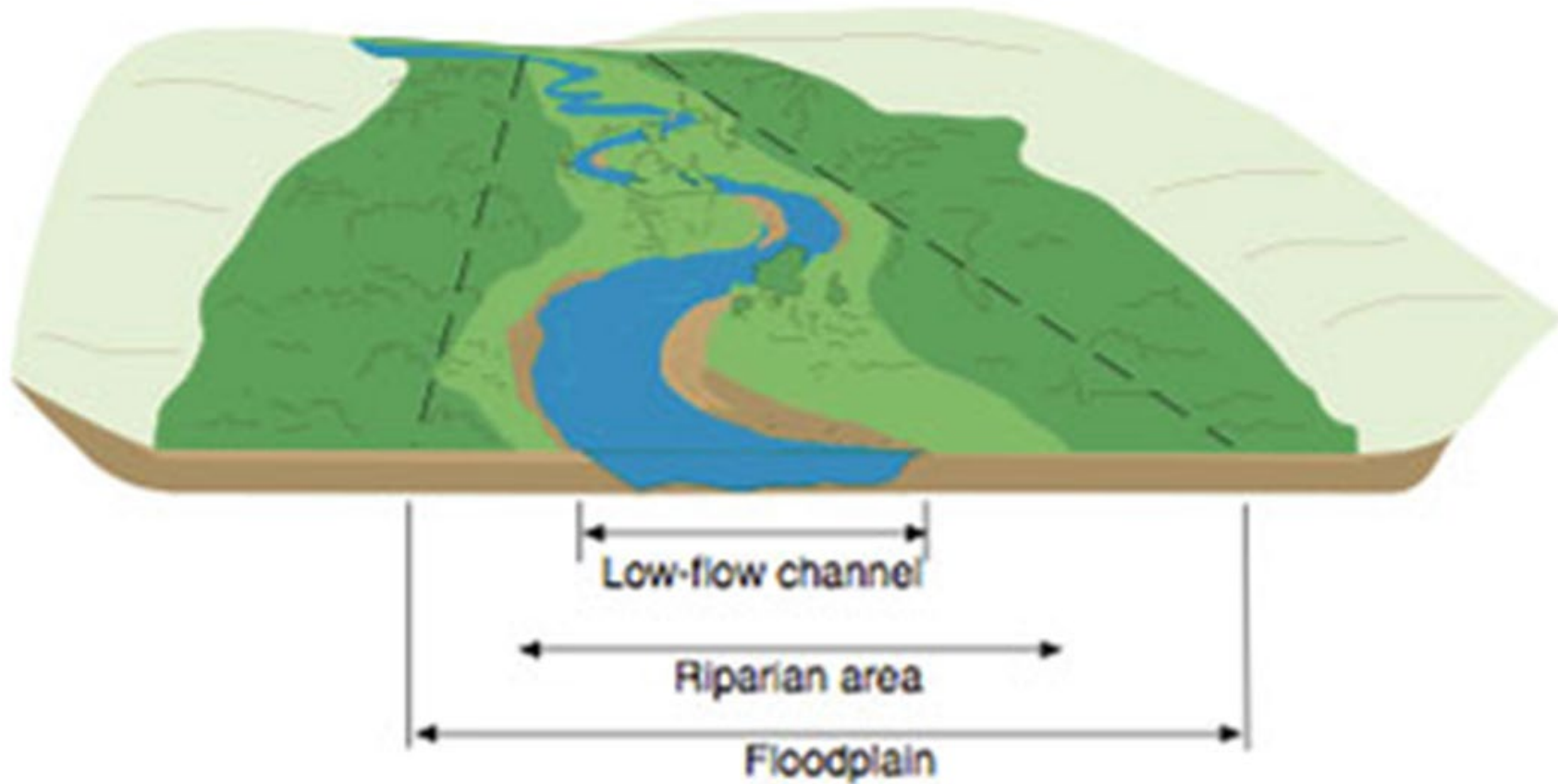


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



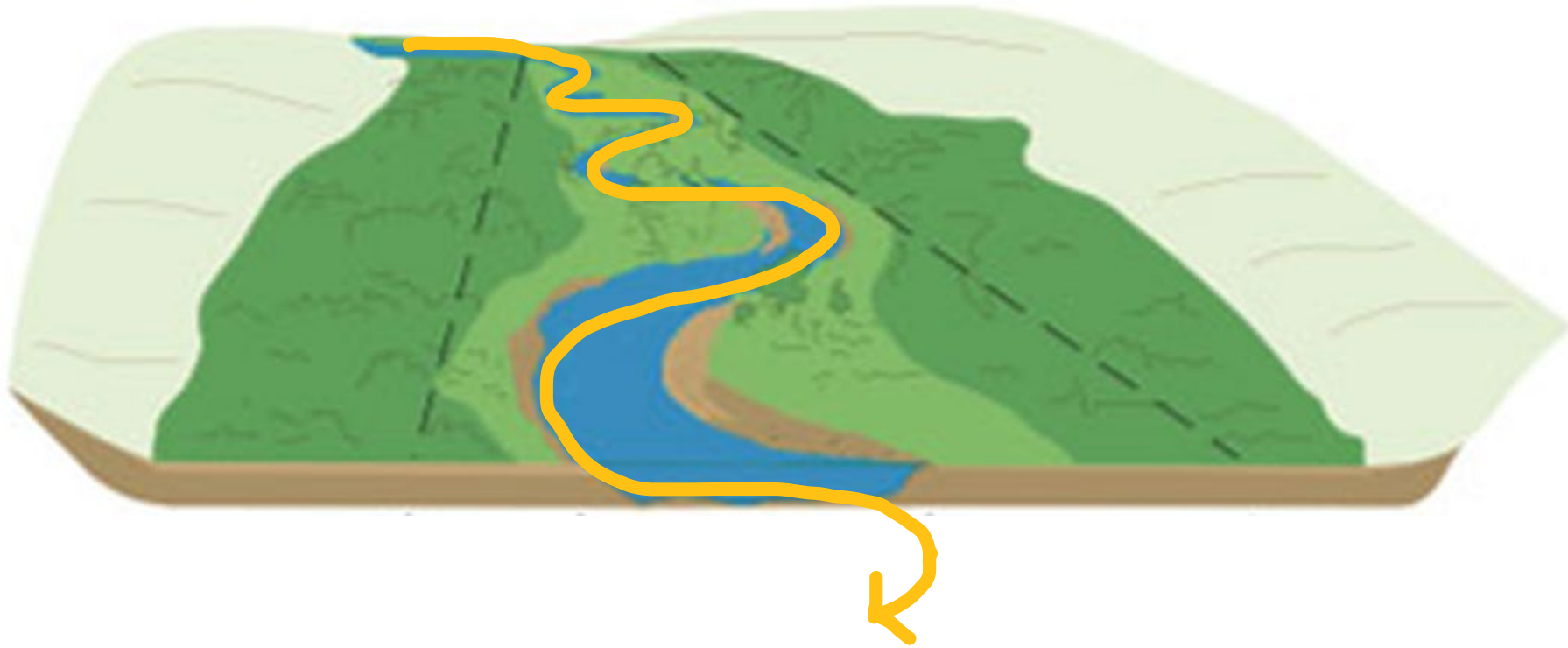
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How Floodplains Work (& Reduce Risk)

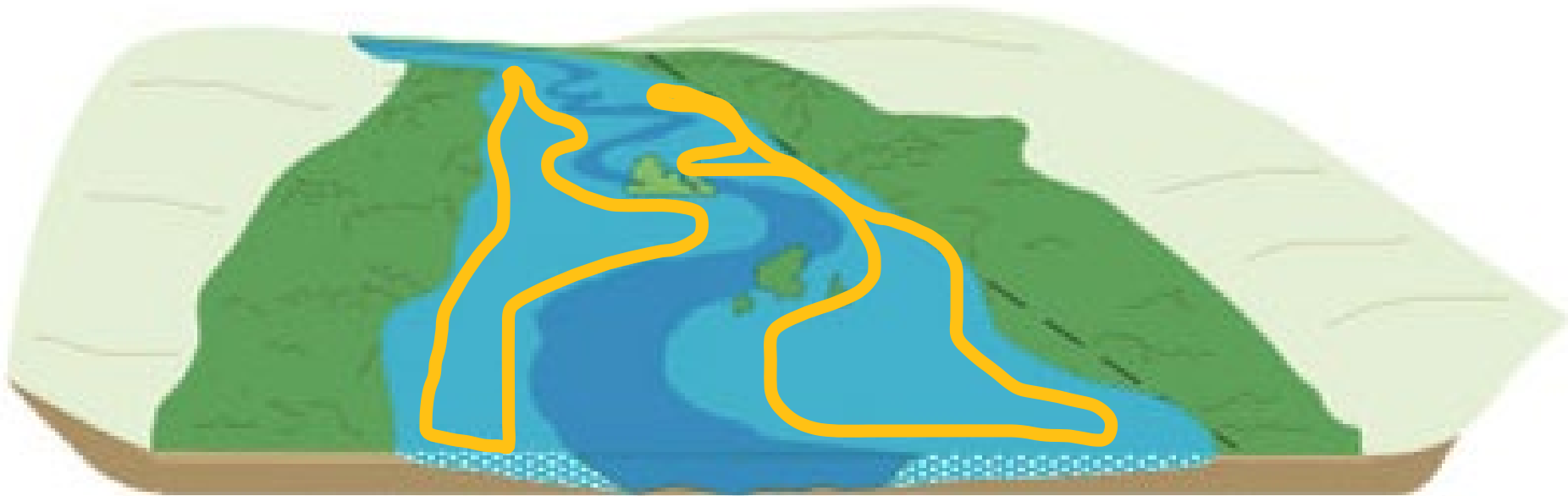


Credit: Ashokan Watershed Stream Management Program

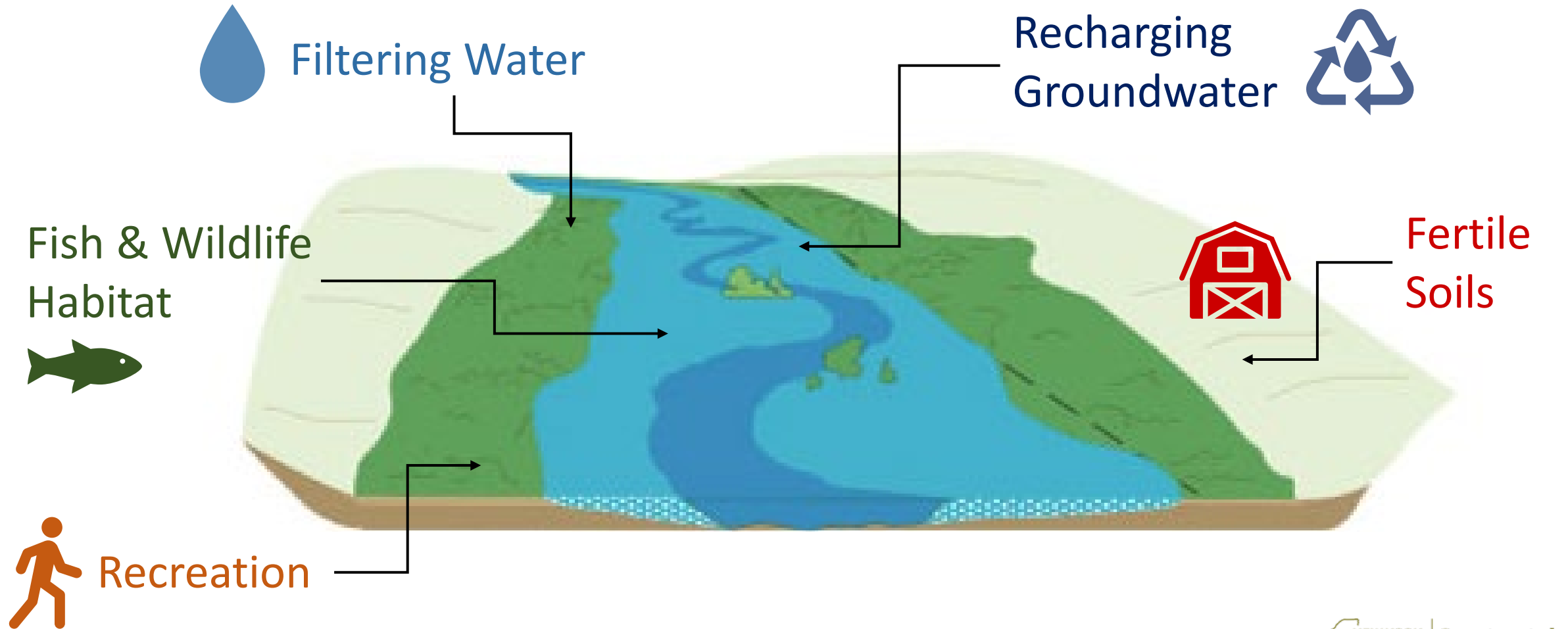
S L O W S flows



STORES & ABSORBS water



Benefits of Healthy Floodplains



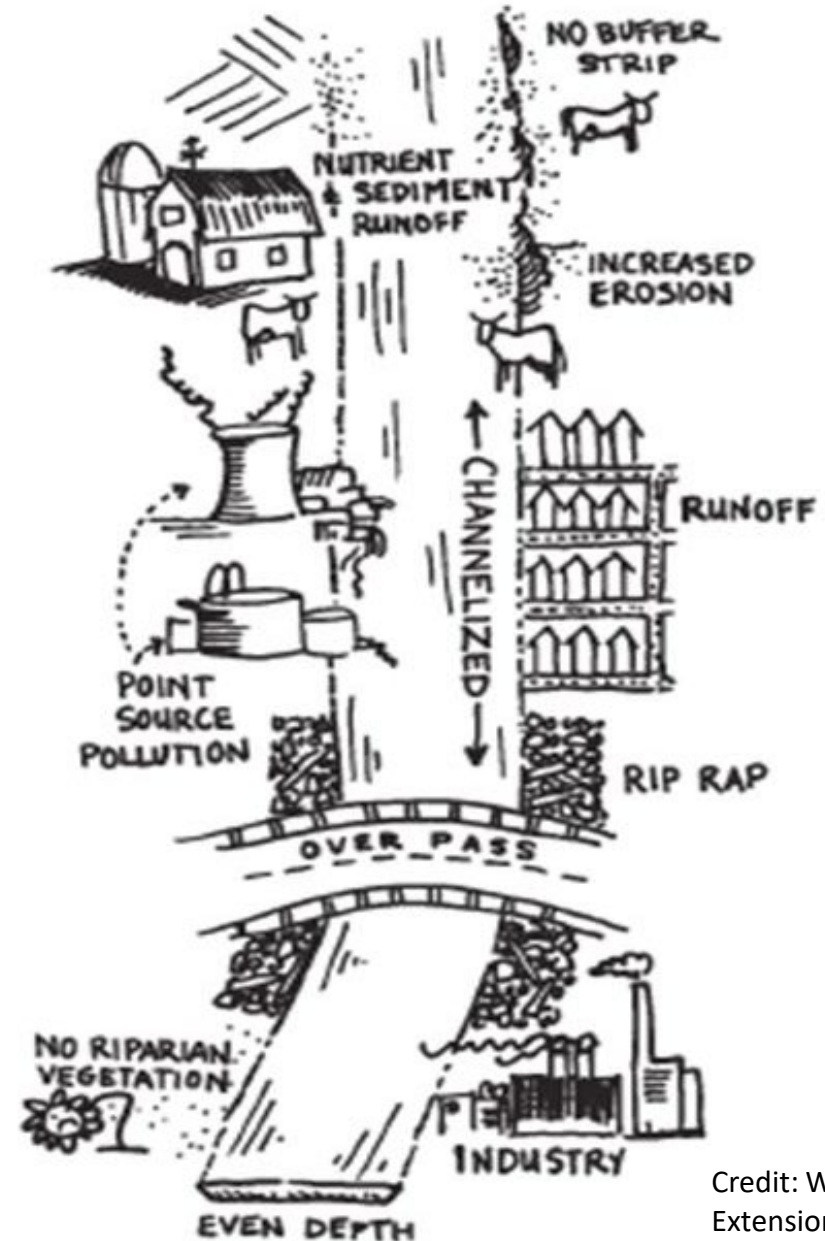
Activities that Impair Floodplain Functions

Filling or Encroaching

Straightening/ Dredging /
Berming/Hardening

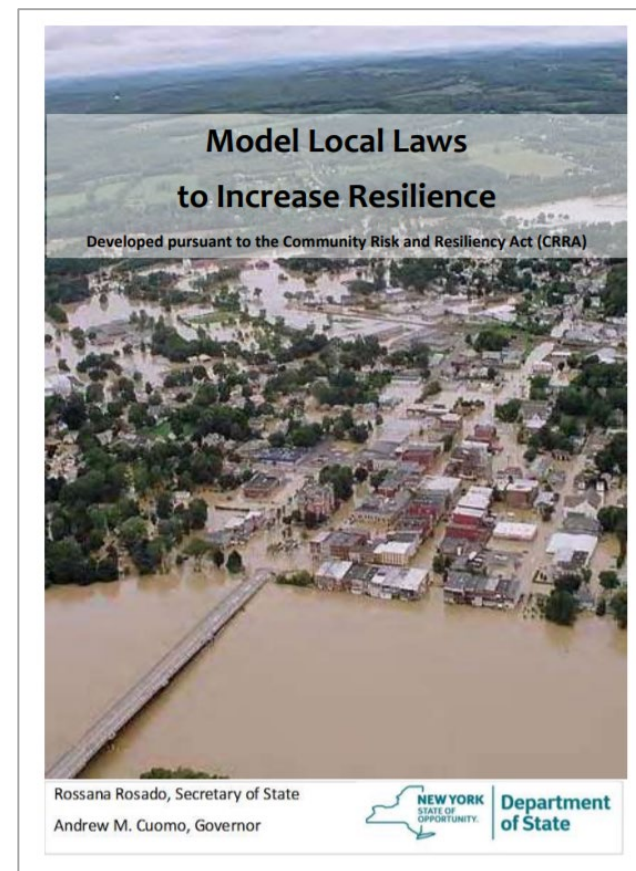
Removal of floodplain
vegetation

Incompatible land uses



Credit: WSU Whatcom County
Extension

Community Risk & Resiliency Act



CRRA Natural Resilience Measures Guidance

What Are Natural Resilience Measures?

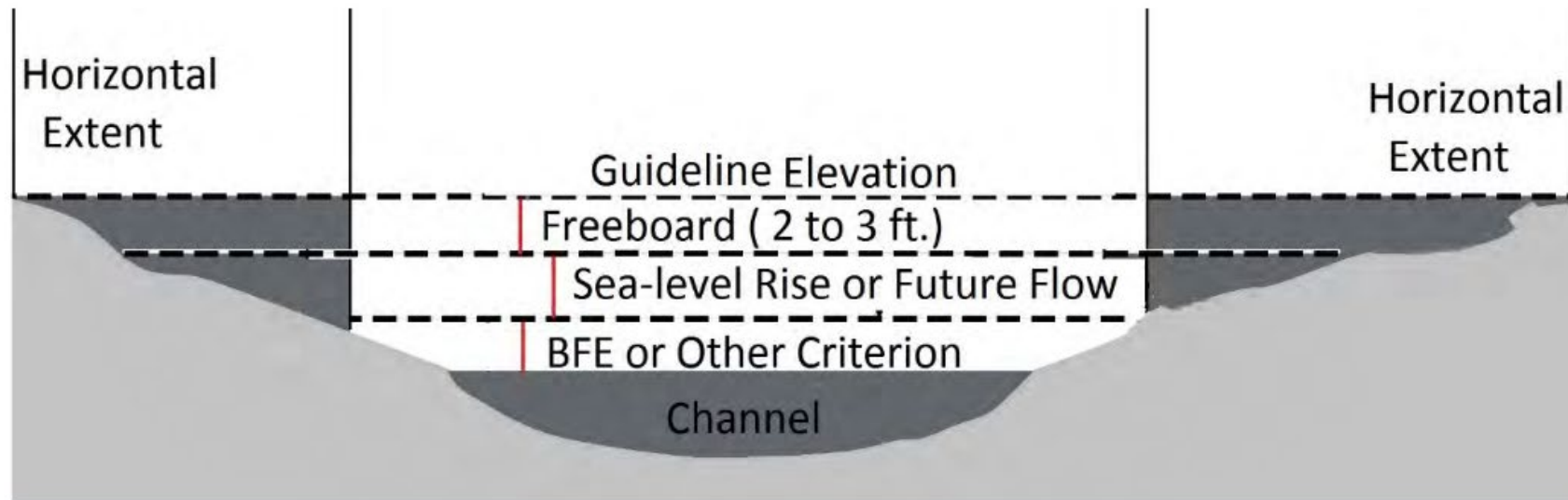
Natural resilience measures are actions to conserve, restore, or mimic natural landforms (or features) and natural processes that reduce risk from flooding and erosion. They work with nature to reduce risk while providing other benefits, or co-benefits, to society, including cleaning our water and air, mitigating drought, and enhancing spaces for outdoor recreation.

Examples of NRM:

- Elevating or relocating structures
- Floodplain protection
- Wetland restoration
- Dune restoration
- Right sizing culverts
- Riparian/shoreline buffers

Flood Risk Management Guidance

- Guideline elevations for all flood risk areas (+ 2' or 3' to BFE)
 - Climate-informed siting (future flow predictions)
 - Critical facilities
 - Design flow elevations for transportation infrastructure
- Summary of existing floodplain regulations/standards, flood risk data and tools



Natural Resilience Measures in Practice



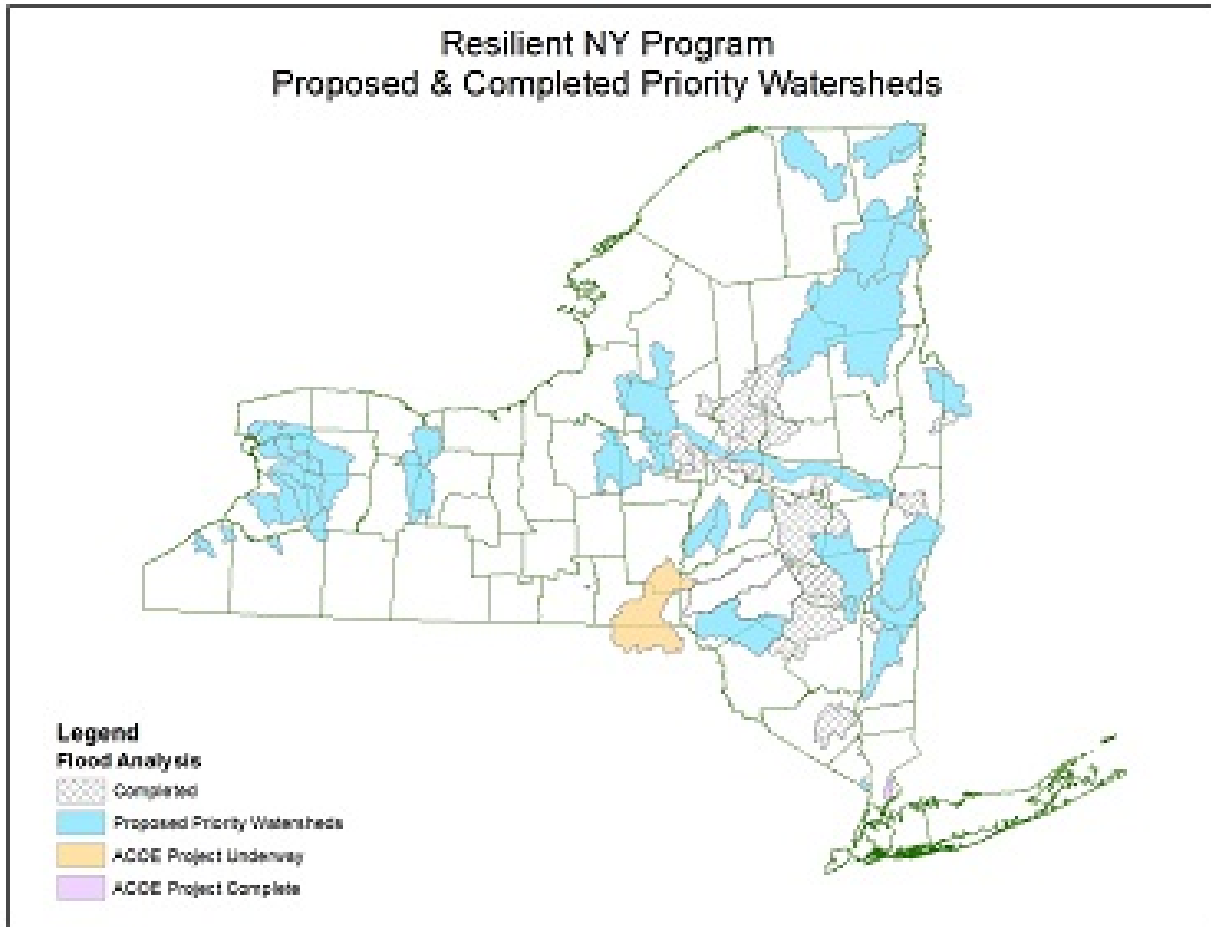
Photo credit: Buffalo Niagara Waterkeeper

Culvert Right-Sizing



Dune Restoration

Resilient NY Flood Studies



- Identifies the causes of flooding in a watershed through hydraulic and hydrological modeling
- Recommend ecologically sustainable flood and ice jam hazard mitigation projects
- Integrate climate change science

Watershed Wisdom

- 1) Avoid the floodplain! If you absolutely cannot (or it's too late), use nature-based solutions to restore natural functions.
- 2) What you do in one place affects other upstream & downstream areas – don't transfer the problem elsewhere!
- 3) Natural systems are dynamic and have greater ability to recover and adapt when left in a natural state.



Thank you!

Joanna Panasiewicz

Watershed Coordinator/LEWPA Program Coordinator
Erie County/Lake Erie Watershed Protection Alliance

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