The Upper Hudson Watershed Analysis (UHWA)

To: Professor Kauffman and Ruggiero

Subject: Watershed Management Plan Report

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The Upper Hudson watershed extends from Mt. Marcy in the Adirondacks to the Albany-Rensselaer County line, encompassing approximately 8,300 square miles. Key hydrological infrastructure such as the Conklingville Dam and Indian Lake Dam play vital roles in flood control and water regulation. The Great Sacandaga Lake, formed by the Conklingville Dam in 1930, remains a central water body in the region. This watershed serves as a critical ecological and hydrological resource for New York State.

Mission Statement

The mission of the Upper Hudson Watershed Analysis (UHWA) is to assess and enhance the health of the Upper Hudson River watershed by reducing urban runoff, improving fish and aquatic organism passage, and minimizing accidental sewage discharges. By 2035, UHWA aims to:

- Reduce runoff pollutants through green infrastructure
- Sustain water quality via continuous monitoring
- Educate the public through targeted outreach initiatives

Identification of Problems

Problem 1 - Urban Runoff

Description:

Runoff from impervious surfaces transports pollutants directly into the watershed.

Causes:

- Soil disturbance from construction
- Impervious surfaces (roads, rooftops)
- Accumulation of oil, debris, and heavy metals

Impact:

- Water quality degradation
- Contaminants such as PCBs and landfill leachate historically discharged into the river
    - GE's 1.3 million lbs of PCBs between 1947–1977
    - About 89 million gallons of landfill leachate annually from 2019–2023

Problem 2 - Fish and Aquatic Organism Passage

Description:

Migration pathways for aquatic life are fragmented.

Causes:

- Improperly sized or placed culverts
- Human driven habitat modification

Impact:

- Segregation of populations
- Reduced genetic diversity
- Blocked access to critical habitats

Problem 3 - Accidental Sewage Discharges

Description:

Infrastructure failures result in untreated or partially treated sewage entering the watershed.

Causes:

- Aging wastewater systems
- Blockages and pump failures
- Overflow events during storms

Impact:

- Degraded water quality
- Health risks from pathogens and nutrient loading
- Disruption of ecosystem oxygen balance

Goals and Solutions

Goal 1 - Reduce Runoff Pollutants

Strategies:

- Install vegetated buffers to intercept and filter runoff
- Promote permeable surfaces and bioswales in urban areas
- Implement local ordinances to manage construction sedimentation

Goal 2 - Sustain Water Quality

Strategies:

- Monthly water quality sampling
- Identify pollutant trends and intervene as needed
- Upgrade or expand pollution control infrastructure by 2035

Goal 3 - Educate the Public

Strategies:

- Launch outreach programs to raise awareness
- Create materials for schools and community centers
- Engage stakeholders in water stewardship through citizen science

Implementation Framework

To translate these goals into accomplishable steps, the following implementation framework outlines a timeline of initiatives, responsible parties, and expected outcomes. This phased approach ensures measurable progress toward improving watershed health by 2035.

Year	**Initiative**	**Responsible Entity**	**Outcome**
2025	GIS mapping of culverts	UHWA and Local Municipalities	Data driven barrier assessment
2026	Vegetative buffer pilot program	Regional Planners	Demonstration of runoff reduction
2027	Community workshops on watershed health	UHWA Outreach Team	Enhanced public involvement
2028-2030	Sewer infrastructure upgrades	State Agencies	Reduced overflow incidents
2031-2035	Full implementation of water quality monitoring	Environmental Consultants	Sustained ecosystem metrics

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Restoring the Upper Hudson River watershed is a long term but necessary effort to preserve water quality, protect biodiversity, and ensure safe, sustainable water access for communities. By targeting key problem areas and leveraging public and private cooperation, UHWA can fulfill its mission of a healthier watershed by 2035. This plan serves as a living document to guide adaptive management and continual improvement in watershed stewardship.

References

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