Stream and Wetland Buffers: Standards, Sizes, and Policies

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Outline

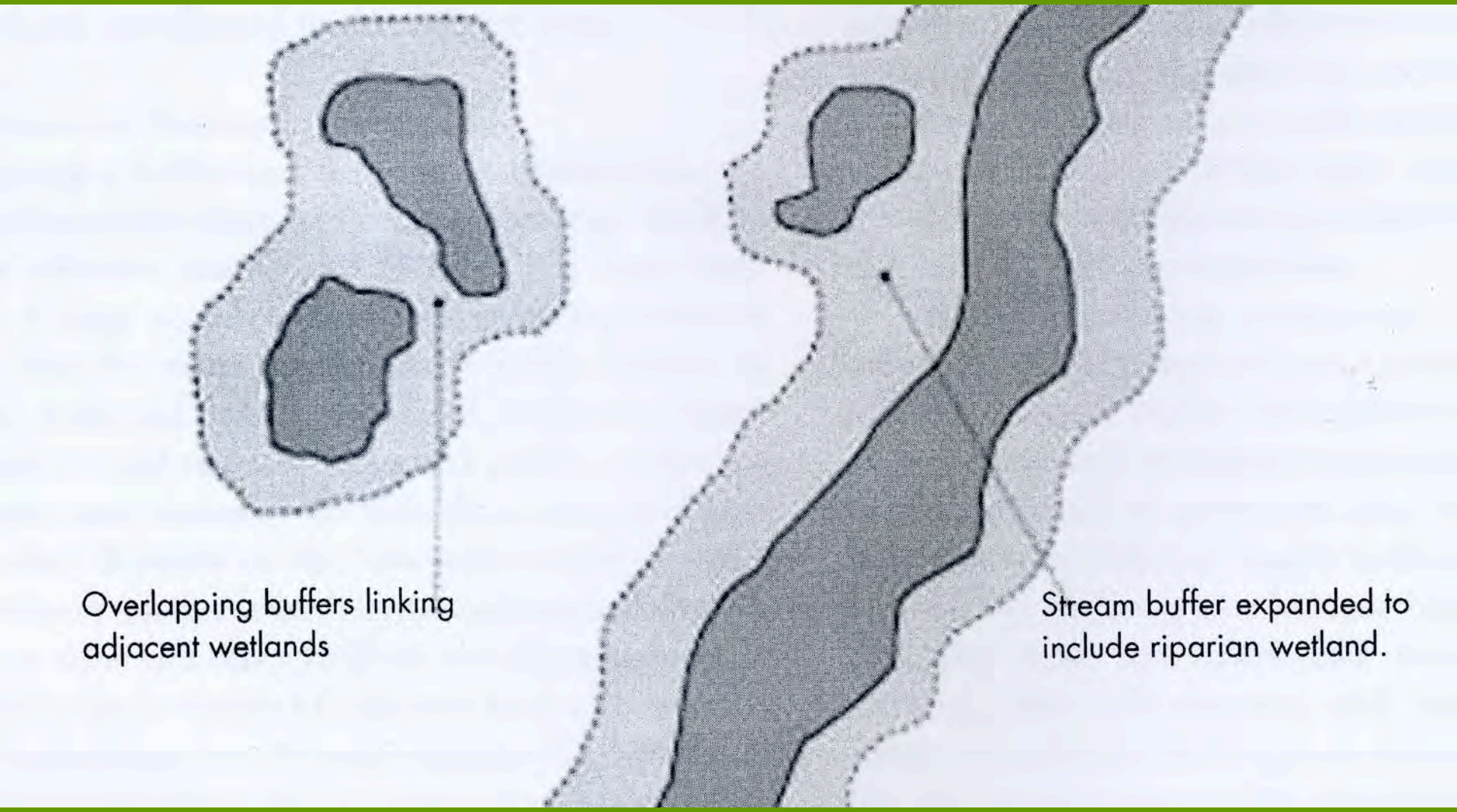
- What is the range of current practice in defining buffers by local governments?
- Is there an ideal size for buffers?
- What are the considerations for developing buffer ordinances?

What is covered in a Buffer Ordinance (four approaches)?

- Approach 1: all wetlands and waters, broadly defined.
  - or “waters of the state”
- Approach 2: Specific wetland types or classes
  - Ex. tidal wetlands,
  - Ex. wetlands over half an acre (Chipley, FL)
  - Ex. wetlands over one-quarter acre (Lake County, IL)

What is covered in a Buffer Ordinance (four approaches)?

- Approach 3: stream and river corridors and floodways (riparian corridors)
  - Including wetlands if they are found within or adjacent to those uses (Summit County, OH)
- Approach 4: For specifically identified and mapped wetlands/riparian areas
  - Rather than relying on definitions
  - Applies to all development within 50 feet of a defined “wetlands protection district” (Pickens County, GA,


Overlapping buffers linking adjacent wetlands
Stream buffer expanded to include riparian wetland.

Sizes of Buffers

- Buffer size depends on:
  - The functions of the resource
  - The relative sensitivity of the resource
  - Characteristics of the buffer
  - Intensity of adjacent land use
  - Watershed characteristics

Other considerations

- Flow pattern
- Vegetation type
- Percent slope
- Soil type
- Surrounding land use
- Pollutant type and dose
- Precipitation

The case for wider buffers

- Sediment and nutrient removal in first 15-30 feet, but 30-100 feet will remove pollutants more consistently.
- Wildlife

Approaches to Setting Buffer Sizes

- Fixed buffer distance for all resources
  - i.e. 75 feet from a wetland
- Varies by type of resource
  - i.e. 75 feet from wetlands, 50 feet from streams
- Varies by quality
  - i.e. 75 feet from least vulnerable wetland, 100 feet from most vulnerable wetlands.
- Varies by Characteristic
  - i.e. 75 feet on steep land, 50 feet on flat land
- Performance standards:
  - Decided by the zoning administrator

Variation in Buffer sizes

- 2008 survey of 50 ordinances:
  - 15 foot buffer to 350 foot buffer

Five Buffer Regulation Approaches

- Fixed nondisturbance buffer
- Nondisturbance buffer plus additional setback
- Regulated buffer area with minimum nondisturbance area
- Matrix based on listed factors
- Case by case determinations

Wetland Category		Standard Buffer Width (ft)
Category I:	Natural Heritage or bog wetlands	215
	Habitat score 29-36	200
	Habitat score 20-28	150
	Not meeting above criteria	125
Category II:	Habitat score 29-36	150
	Habitat score 20-28	100
	Not meeting above criteria	75
Category III:	Habitat score 20-28	75
	Not meeting above criteria	50
Category IV:		50

Water Quality Buffers						
Land Use Intensity	Wetland Category					
	Wetland Outlet	A	B	C	D	E
Low	Yes	40 ft	35 ft	30 ft	25 ft	20 ft
	No	75 ft	50 ft	40 ft	35 ft	25 ft
Moderate	Yes	90 ft	65 ft	55 ft	45 ft	30 ft
	No	105 ft	90 ft	75 ft	60 ft	40 ft
High	Yes	125 ft	110 ft	90 ft	65 ft	40 ft
	No	175 ft	150 ft	125 ft	90 ft	50 ft

Habitat Buffers					
Land use Intensity	Habitat Functions Score				
	50 or higher	42-48	39-41	32-38	Less than 32
Low	150 ft	125 ft	100 ft	75 ft	Use Water Quality & Slope Tables
Moderate	225 ft	175 ft	150 ft	110 ft	
High	300 ft	200 ft	175 ft	150 ft	

Slope Adjustment	
Slope Gradient	Additional Buffer Multiplier
5-14%	1.3
15-40%	1.4
>40%	1.5

Option 1

- Base width: 100 ft.
  - Plus 2 ft. per 1% slope
- Extend to edge of floodplain
- Include adjacent wetlands
- Impervious surfaces do not count toward buffer width
- Slopes over 25% do not count toward the width
- Applies to all perennial and intermittent streams

Option 2

- Same as option 1, except:
- Base width is 50 ft. plus 2 ft. per 1% slope
- Entire floodplain not included in buffer
- Ephemeral streams not included

Option 3

- Fixed buffer width of 100 ft.
- Only streams that appear on USGS 1:24,000 are included

Other Considerations

- Exempting agricultural operations
- Separate regulations for livestock operations
- How are slopes measured?
- Design/landscape standards
- Setbacks for hazardous uses
- Other allowable uses?

Management

- Banning resource practices and activities
- Roads, bridges, utilities
- Stormwater BMP manual
- Protective covenant
- Penalties for non-compliance

Conclusions

- Environmental Law Institute Handbook for Buffers
  http://www.elistore.org/reports_detail.asp?ID=11272
- EPA Model Buffer Codes:
  http://water.epa.gov/polwaste/nps/buffers.cfm
- University of Georgia comparison of buffer ordinances:
  http://www.rivercenter.uga.edu/service/tools/buffers/buffer_lit_review.pdf