

Shoreline Master Program: Buffers

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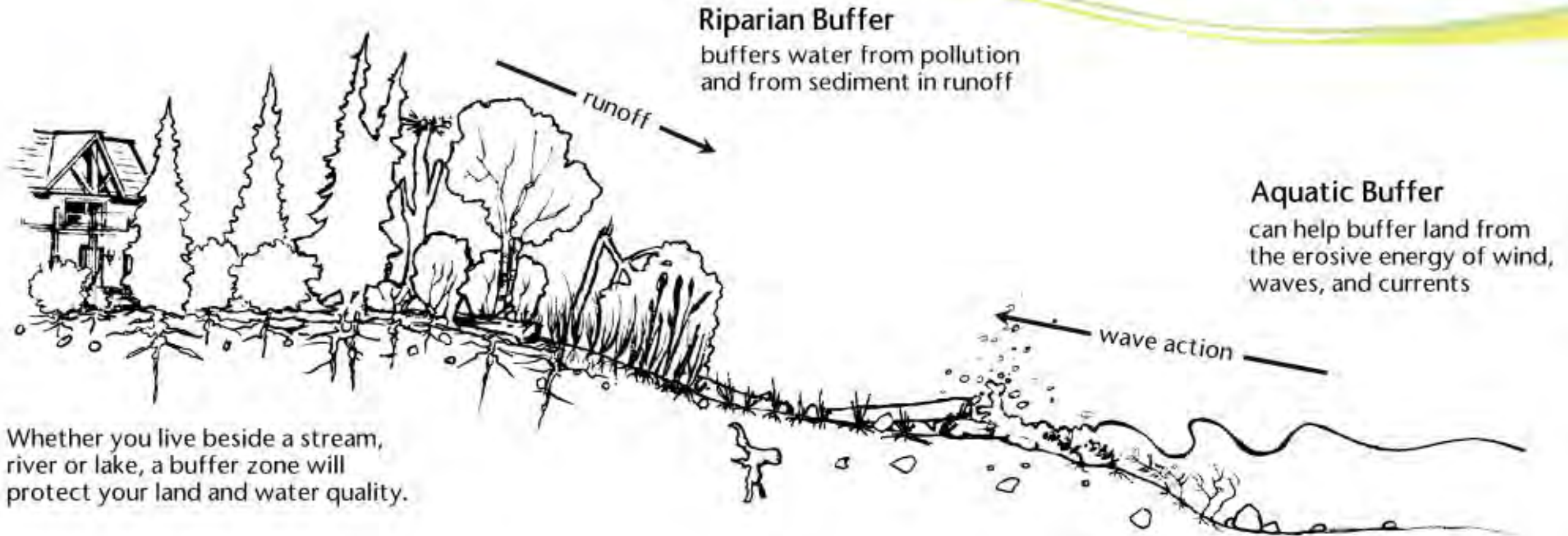
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What are buffers?

- Draft SMP (19.150): A non-clearing area established to protect the integrity, functions and values of the affected critical area or shoreline, so that no net loss of critical area or shoreline ecological functions occurs.
 - Under optimal conditions, buffers are composed of intact native vegetation.
 - Buffer widths are measured horizontally.



Your buffer zone



Whether you live beside a stream,
river or lake, a buffer zone will
protect your land and water quality.

From On the Living Edge

Why are they important?

- Buffers help protect human and wildlife health; economic and recreation opportunities
- Buffers provide important functions to protect waterbodies regulated by the SMP
 - Pollution filtration
 - Sediment removal
 - Erosion control
 - Water quality protection
 - Shade/microclimate/temperature control
 - Large woody debris source
 - Wildlife habitat
- Functions are provided at different widths
- Specific site conditions control how buffers function

Buffer Widths for Different Functions

Function	Recommended Buffer Width (includes literature averages)	Study
Wildlife	100-1,000 ft	Ecology 2013 (citing Environmental Law Inst.)
	287 ft	WDFW 1997
	318 ft	Kitsap County
	571 ft (80%)	Brennan & Culverwell 2009
Sediment removal	30-100 ft	Ecology 2013
Fine sediment control	112 ft (50-90%)	WDFW 1997
Erosion control	117 ft	Kitsap County
Sediment filtration	190 ft (80%)	Brennan & Culverwell 2009
Nitrogen removal	100-180 ft	Ecology 2013
Phosphorus removal	30-100 ft	Ecology 2013
Water quality	358 ft (80%)	Brennan & Culverwell 2009
Pollution filtration	78 ft	WDFW 1997
	231 ft	Kitsap County
Shade	79 ft (80%)	Brennan & Culverwell 2009
	132 ft	Kitsap County
Temperature control	90 ft (50-100%)	WDFW 1997
Microclimate	280 ft	Kitsap County
	412 ft	WDFW 1997
Large woody debris	147 ft	WDFW 1997
	161 ft	Kitsap County
	180 ft (80%)	Brennan & Culverwell 2009

Water Quality Buffer Widths

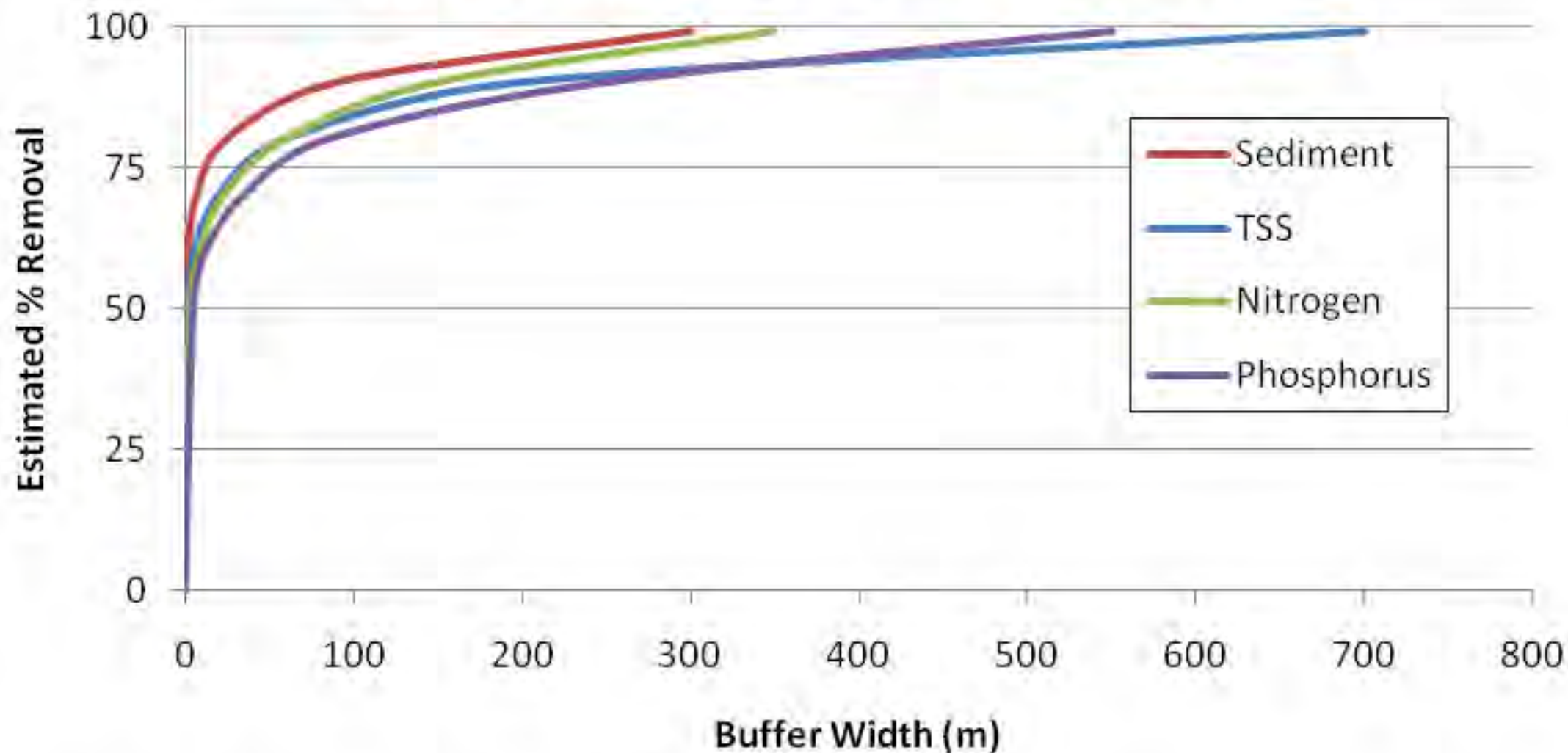
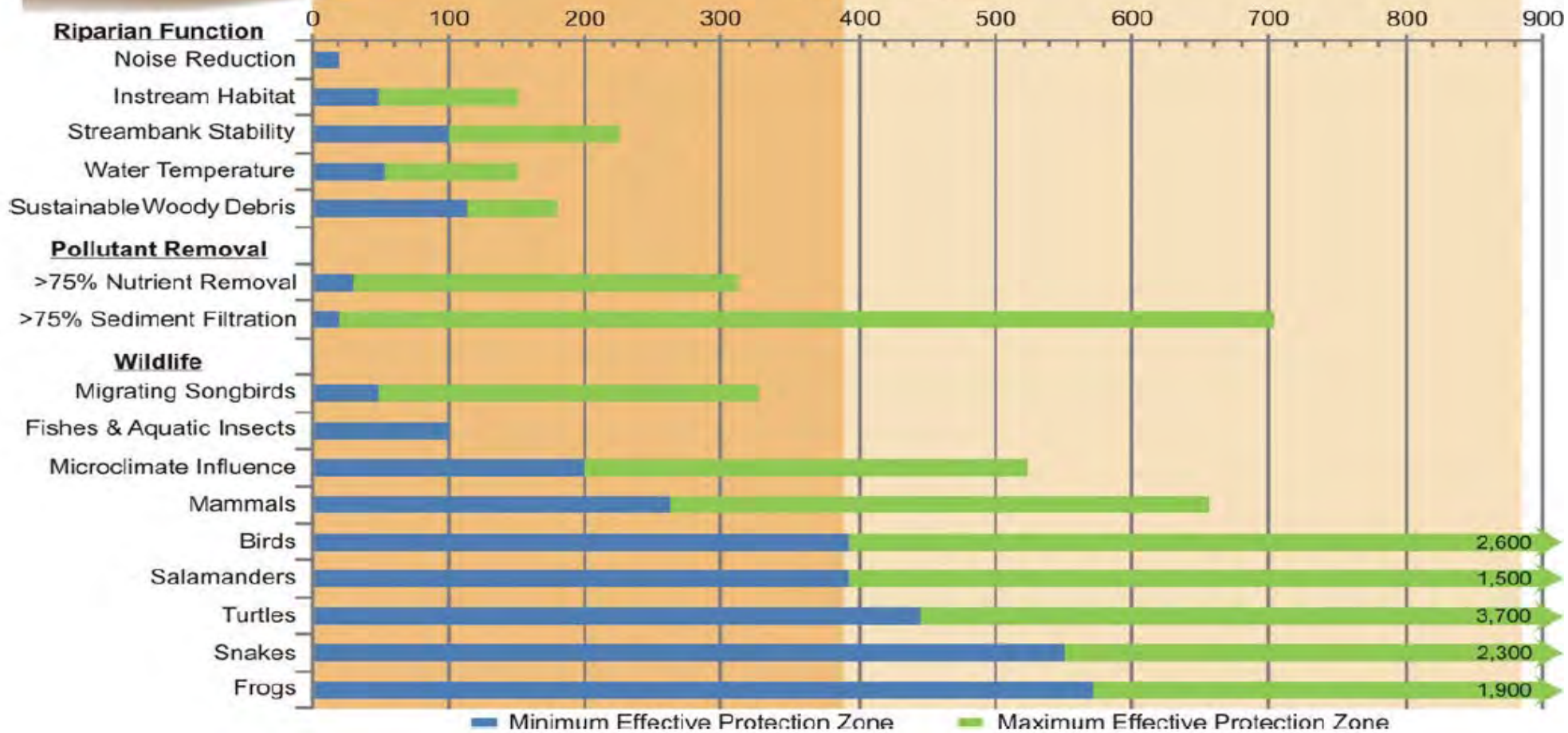
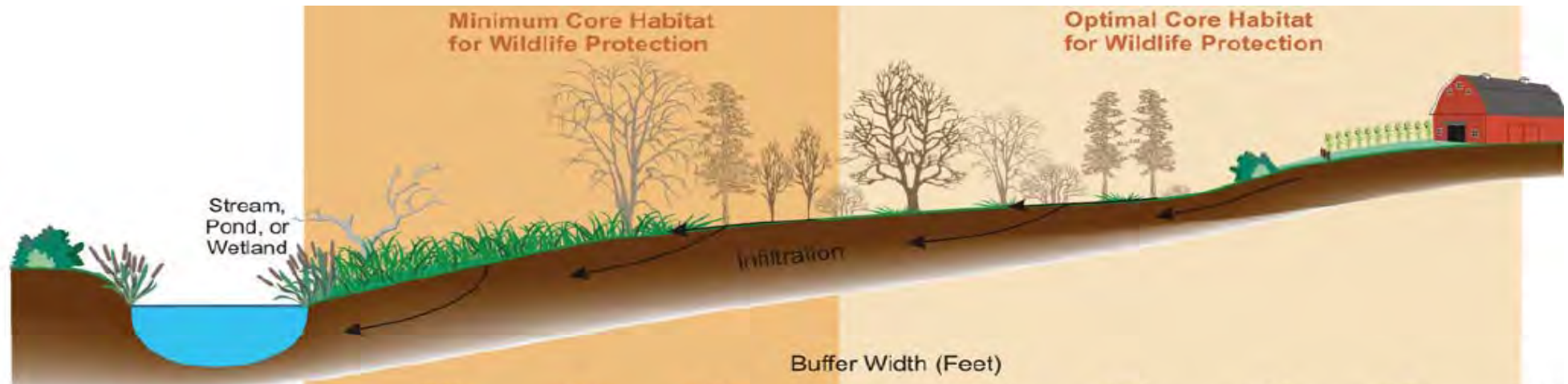


Table 1. Summary data adapted from Desbonnet et al. (1994, 1995) used to generate generalized curve for removal effectiveness of various pollutants at different buffer widths. This data is identical to Desbonnet et al (1995) with the exception of the zero point which we added for illustrative purposes.

% Removal	Buffer Width in Meters (ft)			
	Sediment	TSS	Nitrogen	Phosphorus
0	0	0	0	0
50	0.5 (1.6)	2 (6.6)	3.5 (11)	5 (16)
60	2 (6.6)	6 (20)	9 (30)	12 (39)
70	7 (23)	20 (66)	23 (75)	35 (115)
80	25 (82)	60 (197)	60 (197)	85 (279)
90	90 (296)	200 (656)	150 (492)	250 (820)
99	300 (984)	700 (2297)	350 (1148)	550 (1804)



Current and Proposed SMP Buffer Widths

1990 Shoreline Environment Designation	Standard Buffer Width
Urban Environment	20 ft or width prescribed in local zoning ordinance
Suburban Environment	50 ft
Rural	50 ft
Conservancy	100 ft
Natural	100 ft

1990

2012 Shoreline Environment Designation	Standard Buffer Width		
	Marine	Lakes	Streams
Urban Environment	250 ft	20 ft	250 ft
Suburban Environment	250 ft	50 ft	250 ft
Rural	50 ft	50 ft	250 ft
Conservancy	250 ft	100 ft	250 ft
Natural	250 ft	100 ft	250 ft

Current

Designation	Marine (Std./Reduced Buffer)	Lakes (Std./Reduced Buffer)	Streams
Shoreline Residential	50 ft*	50 ft*	250 ft
Urban Conservancy	125 ft/75-90 ft	125 ft/75-90 ft	250 ft
Rural Conservancy	150 ft/110 ft	150 ft/110 ft	250 ft
Natural	200 ft/150 ft	200 ft/150 ft	250 ft

Proposed

Buffer Considerations

- Stream buffers are proposed to be 250'
 - Shoreline streams are large streams
 - Biological opinion
 - Provide for fish habitat and migration (i.e. salmon and other spp.)
 - Community rating system
 - Channel migration/erosion
- Fixed buffer of 250' was originally proposed for marine shorelines for these reasons. Marine shorelines also:
 - Provide fish habitat and migration for juveniles (e.g. forage fish)
 - Promote beach nourishment (feeder bluffs)
 - Protect structures from hazards

	Thurston County 1990 SMP/2012 CAO	DRAFT Thurston County SMP	Kitsap County SMP	Mason County SMP	Lewis County SMP	Pierce County SMP
Shoreline Residential	Marine/lakes 50 feet	50 feet	85 feet	Marine/lakes 100ft/100ft	150 feet	75 feet
Urban Conservancy	Marine/lakes 250ft/100ft	125 feet (90)	100 feet	Marine/lakes 100ft/100ft	150 feet	100 feet
Rural Conservancy	Marine/lakes 250ft/100ft	150 feet (110)	130 feet	Marine/lakes 150ft/100ft	150 feet	100 feet
Natural	Marine/lakes 250ft/100ft	200 feet (150)	200 feet	Marine/lakes 150ft/100ft	200 feet	150 feet
Streams	250 feet*	250 feet*	200 feet*	150 feet**	150-200 feet***	100-150 feet**

Jurisdiction	Gross Standard Buffer Width Range (in feet)
Thurston County current	50-250
Thurston County proposed	50-250
City of Tumwater	50-250
City of Lacey	50-200
City of Olympia	30-200
Mason County	100-150
Pierce County	35-150
King County	115-165
Snohomish County	150
Island County	0-195
Whatcom County	100-150
Jefferson County	100-150
Clallam County	35-175
San Juan County	50-100
Kitsap County	50-200

Questions & Discussion