AMT Office Hours

3/8/2024

Loading ratios and Land Uses Section 2.2

What is a Land Use?

- A group specified classification of the area in a larger sector
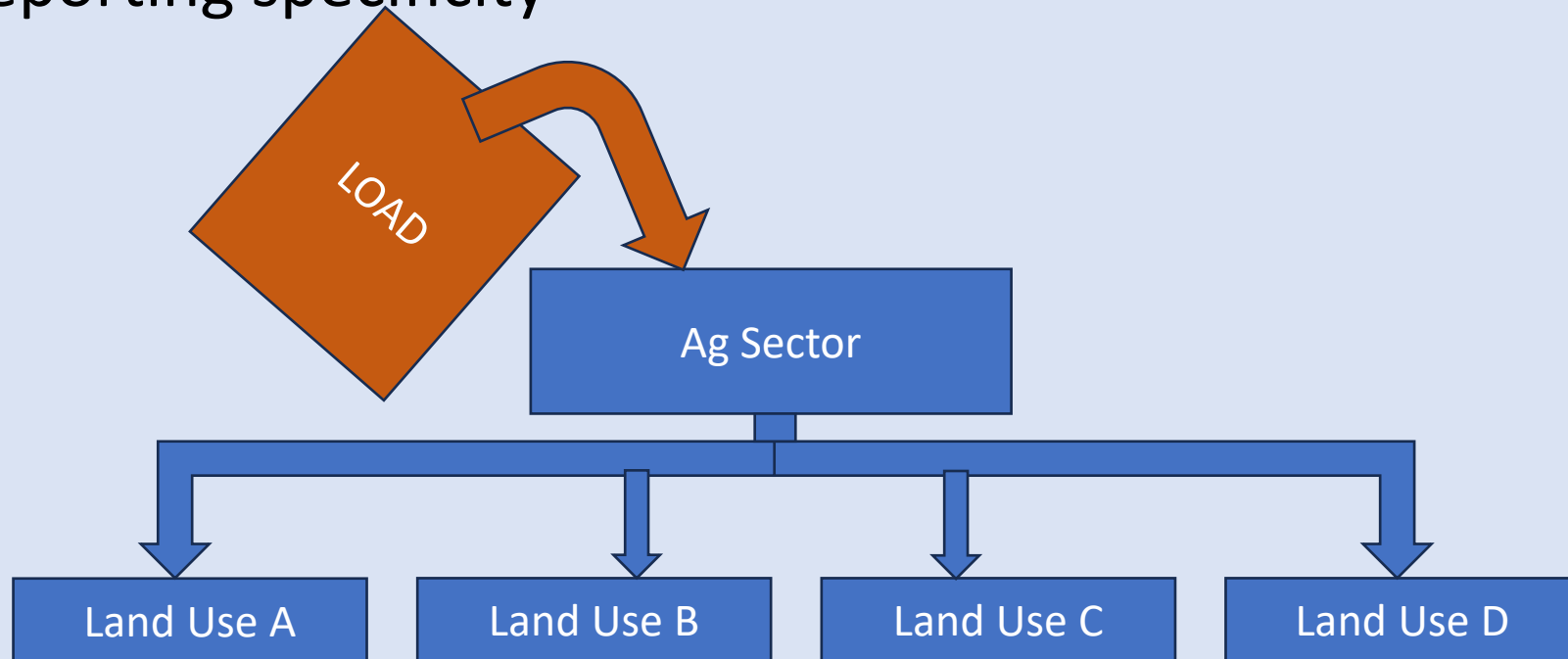
What is a Loading Ratio?

- Numeric value which converts all land nutrient loads into a relationship with a reference land use.

Agriculture Land Uses and Loading Ratios

Land class	Land Use	Loading Rate Ratio	Loading Rate (pounds per acre per year)
Chesapeake Bay Average			
Cropland	Double Cropped Land	0.79	30.9
	Full Season Soybeans	0.71	27.7
	Grain with Manure	1.4	54.7
	Grain without Manure: **Reference land use**	1	39.1
	Other Agronomic Crops	0.45	17.6
	Silage with Manure	1.62	63.3
	Silage without Manure	1.16	45.3
	Small Grains and Grains	0.84	32.8
	Specialty Crop High	1.34	52.4
	Specialty Crop Low	0.31	12.1
Pasture	Ag Open Space	0.43	5.1
	Legume Hay	0.74	8.7
	Other Hay	1.04	12.3
	Pasture: **Reference Land Use**	1	11.8

Why do we have different Land Uses?

- Attributing loads to land use sources in greater detail than the sector
  - Our sector is agriculture.
- Nutrient application source (biosolid, manure, inorganic fertilizer)
- BMP reporting specificity

What effect do Land Uses on Load?

Where there IS an effect
• Spatial distribution of load

Where there is NOT an effect
• The overall load amount

Why would we change Land Uses?

If there is there a difference in pollution.

If different Land Uses are more helpful for addressing load with different policies (i.e. future BMPs).

If BMPs would need to be eligible to a subset of this Land Use.

Why do we have Loading Rate Ratios?

[Relative Agricultural Land Use Loading Ratios for Calibration of the Phase 6 Chesapeake Bay Watershed Model](#)

- Needed to quantify a load loss for each Land Use.
- Literature, field study, and judgement were combined.
- Ratio approach was selected rather than N-loss estimates using the mass of N per unit area.

What is the impact of these Loading Ratios?

Where there IS an effect
•Spatial distribution of load

Where there is NOT an effect
•The overall load amount

Why would we change these Ratios?

If Land Uses are changed.

If we have new information that can inform how Land Uses should Load the water.

If there was a better way to split Loads amongst Land Uses.

Summary

Land Uses help distribute loads from the larger sector (Agriculture).

Loading Ratios define how each Land Use contributes loads to water.

Changes to Land Uses and/or Loading Ratios will have spatially varying impacts.

Questions?