

Land-sea connections in Puget Sound and why they matter

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PUGET SOUND INSTITUTE

W UNIVERSITY of WASHINGTON | TACOMA

Land Use Session: 2025 NW Straits MRC Conference

Estuaries – interface ecosystems

Terrestrial



Aquatic



Columbia River, OR

Salty

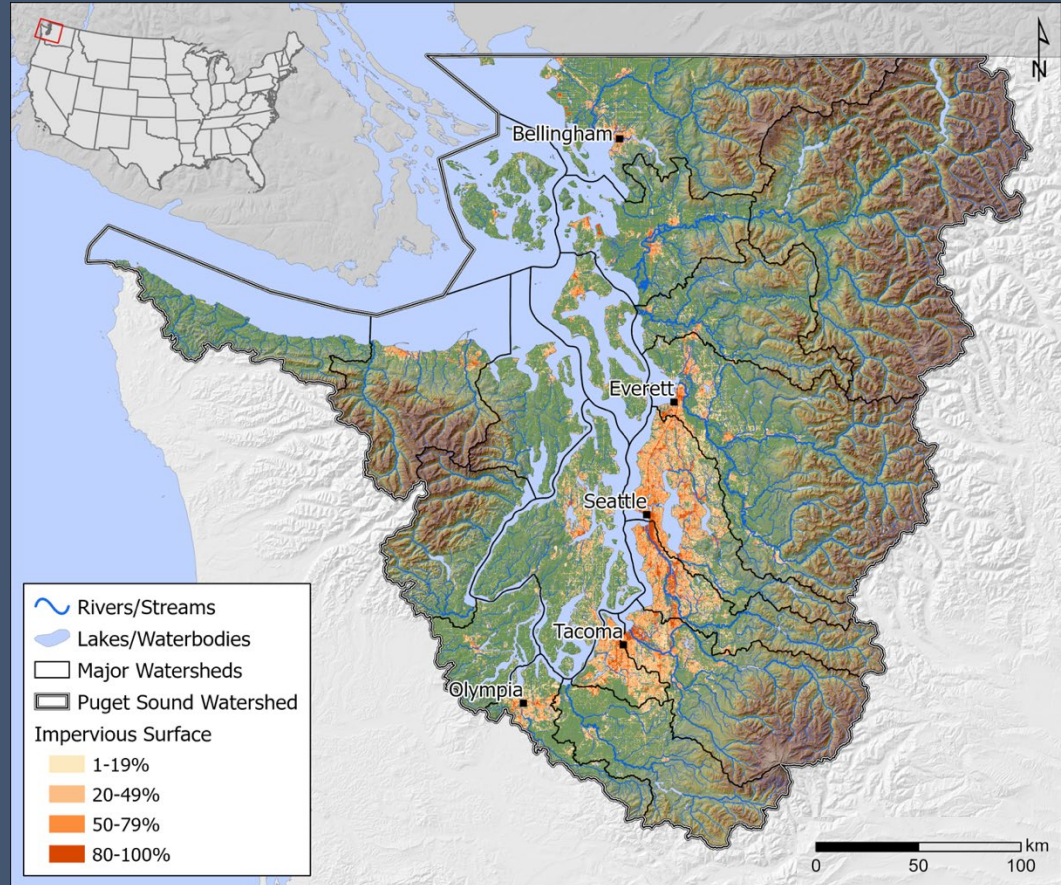


Fresh



Willapa Bay, WA

Puget Sound: an inland sea estuary

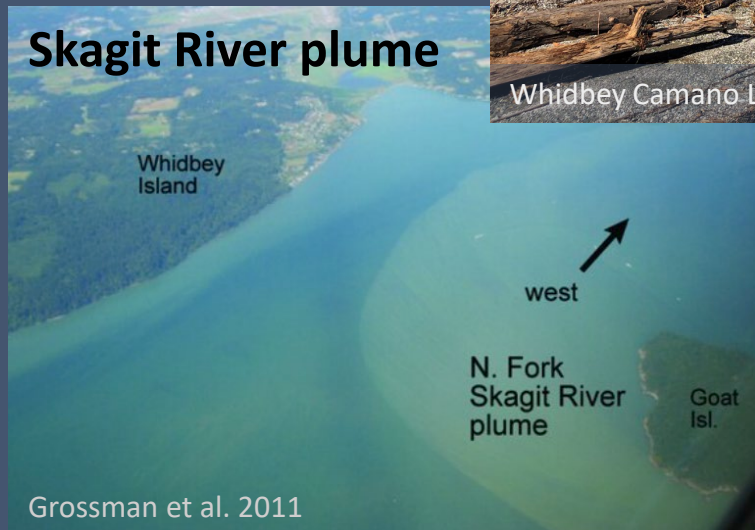


Possession Sound Preserve feeder bluff



Whidbey Camano Land Trust

Skagit River plume



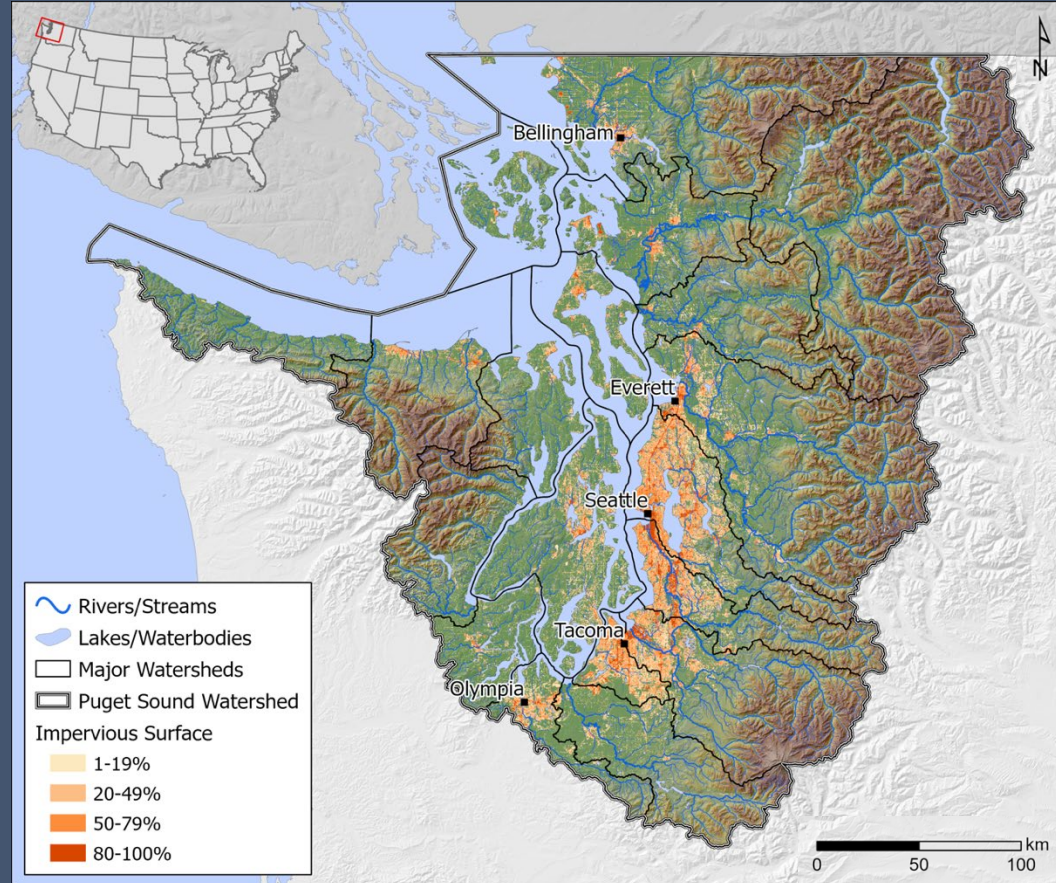
Grossman et al. 2011

Fraser River plume



Ed McNichol, Ocean Networks Canada

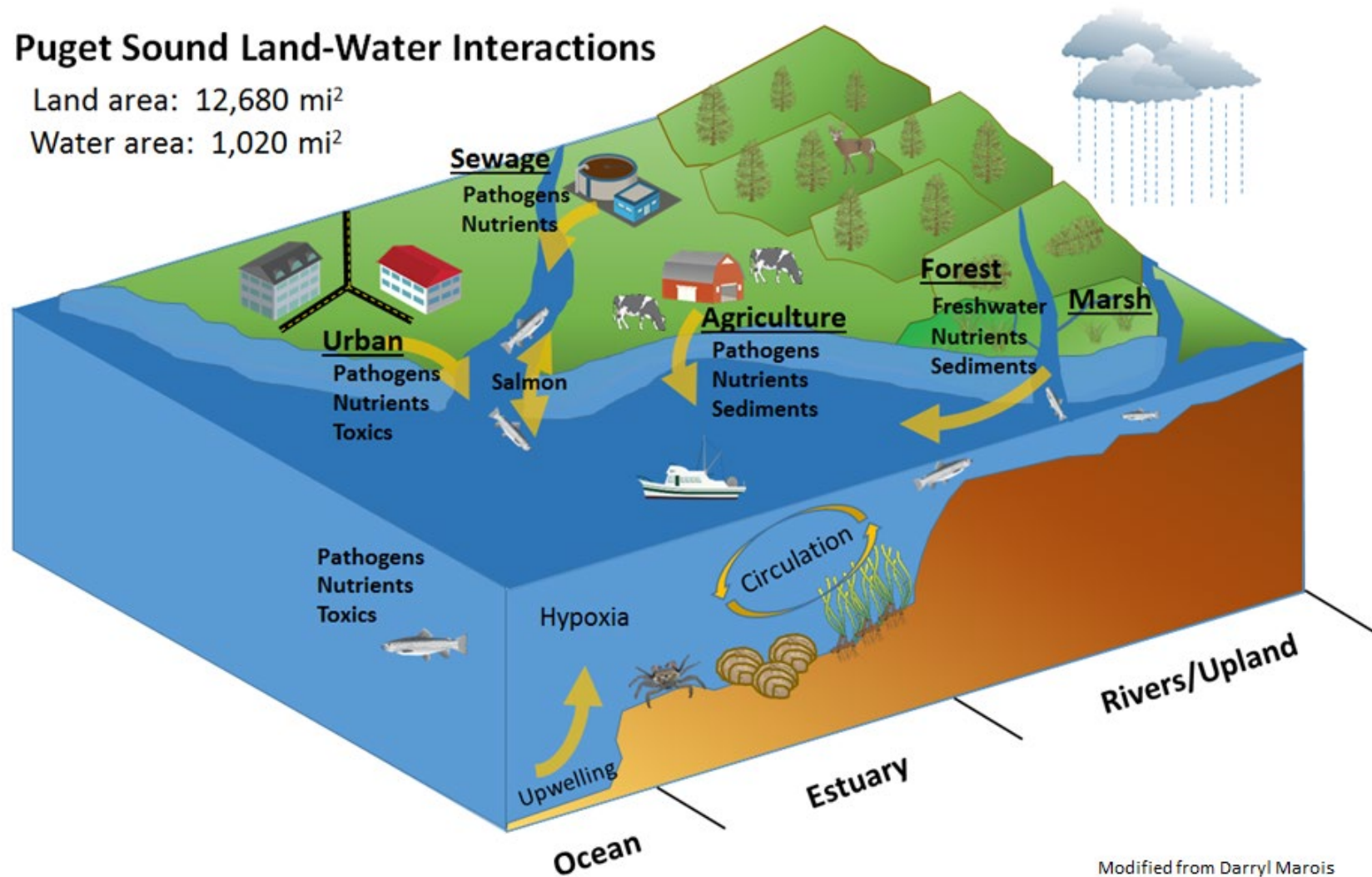
Puget Sound: an inland sea estuary



Puget Sound Land-Water Interactions

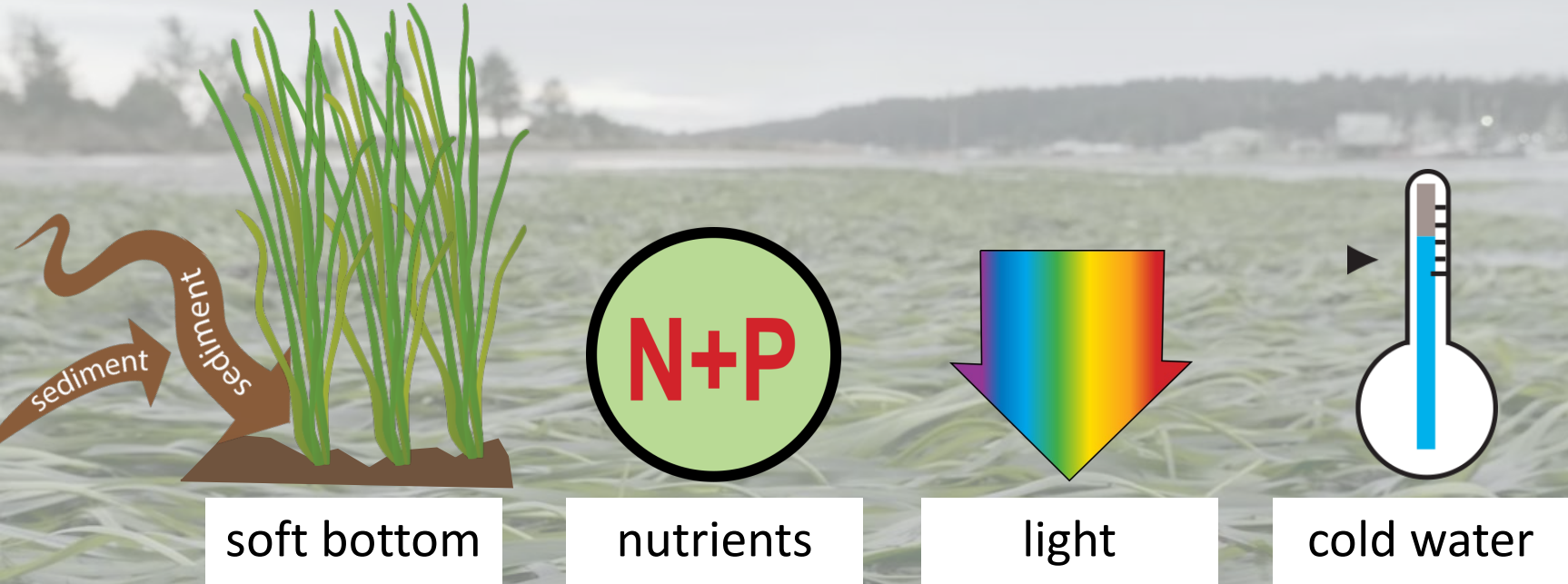
Land area: 12,680 mi²

Water area: 1,020 mi²

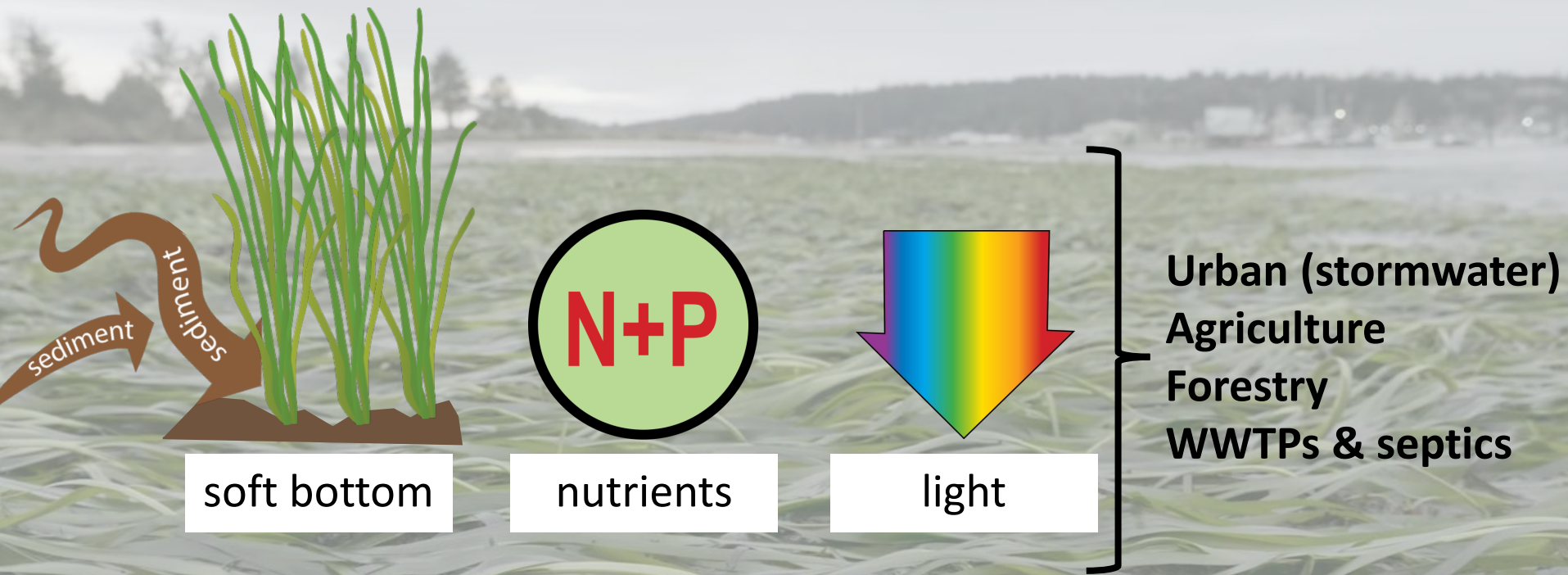


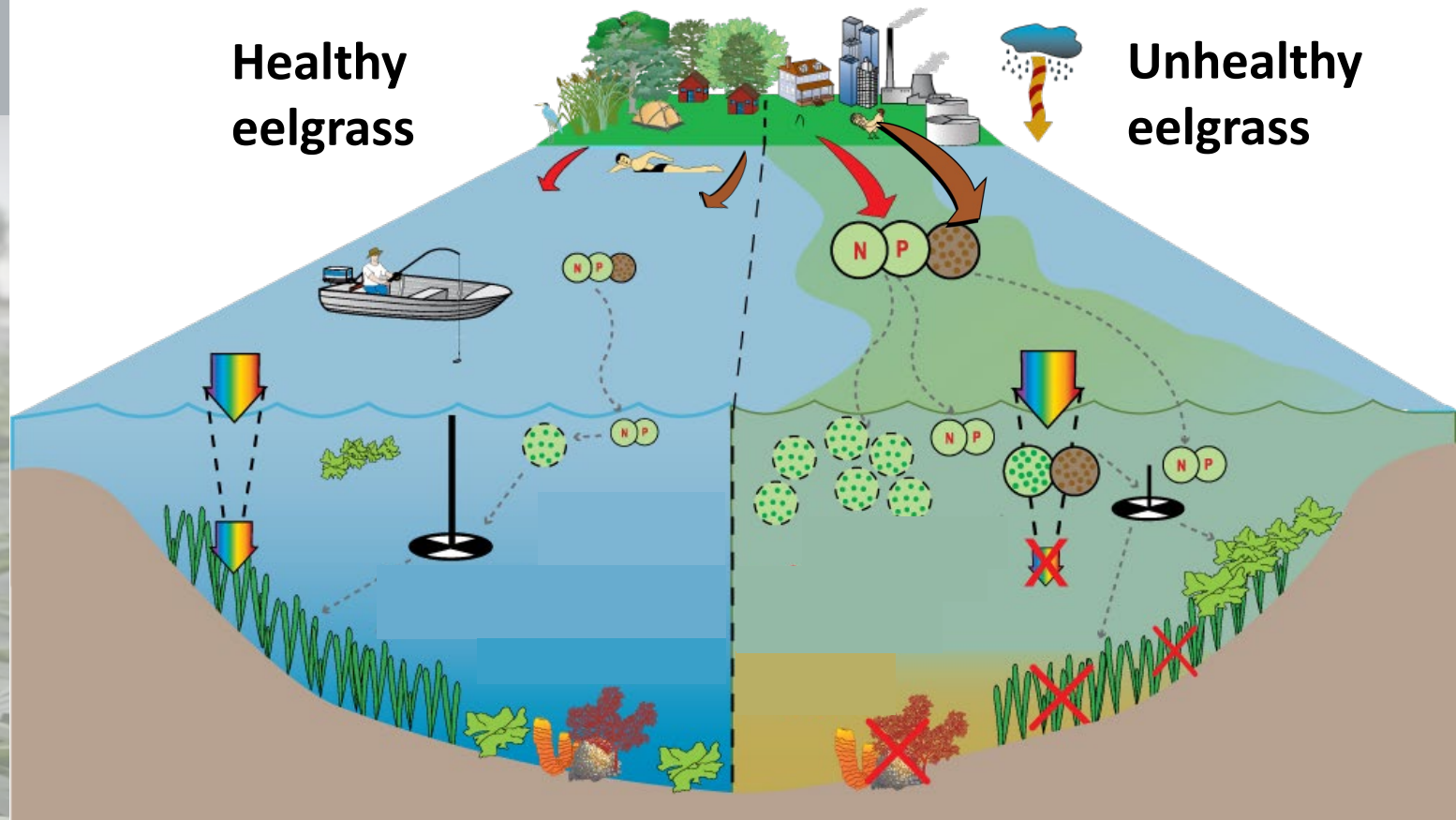


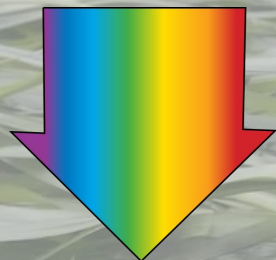
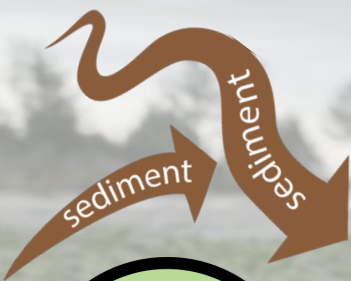
Recipe for healthy eelgrass



Recipe for healthy eelgrass

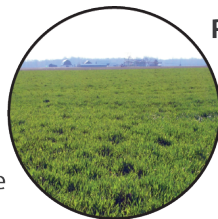






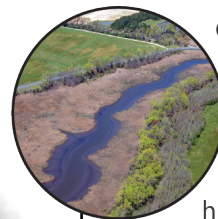
Animal manure management

Lagoons, ponds, steel or concrete tanks, and storage sheds are used for the treatment or storage of waste.



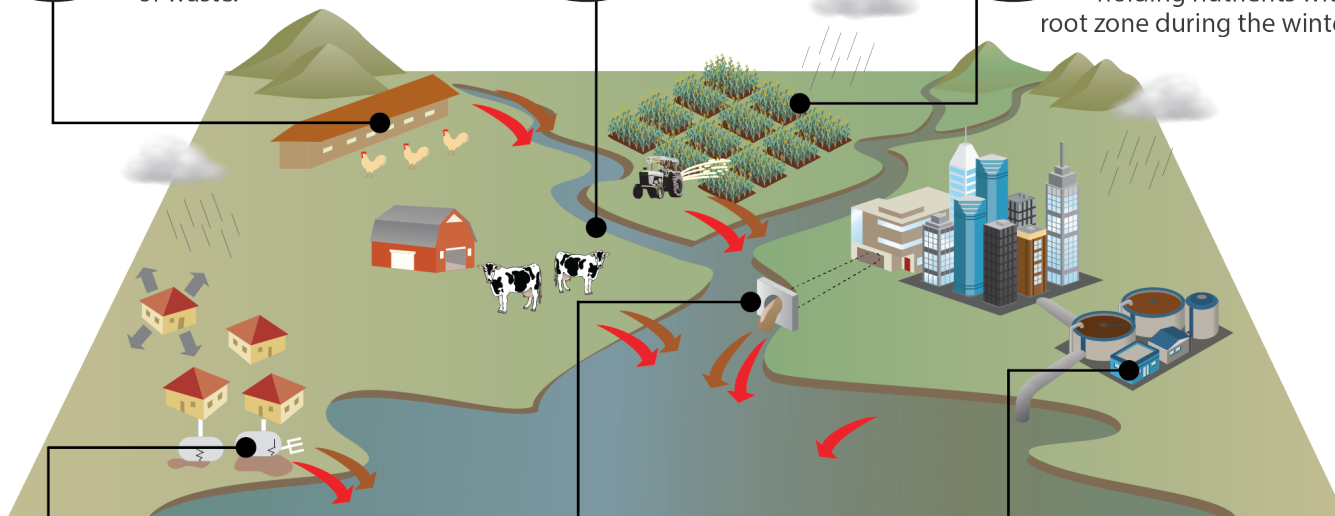
Riparian buffers

Significantly reduce nutrient and sediment inputs to waterways.



Cover crops

Reduce erosion and the leaching of nutrients to groundwater by maintaining a vegetative cover of cropland and holding nutrients within the root zone during the winter.



Septic upgrades

The replacement of traditional septic systems with more advanced systems that have additional nitrogen removal capabilities.



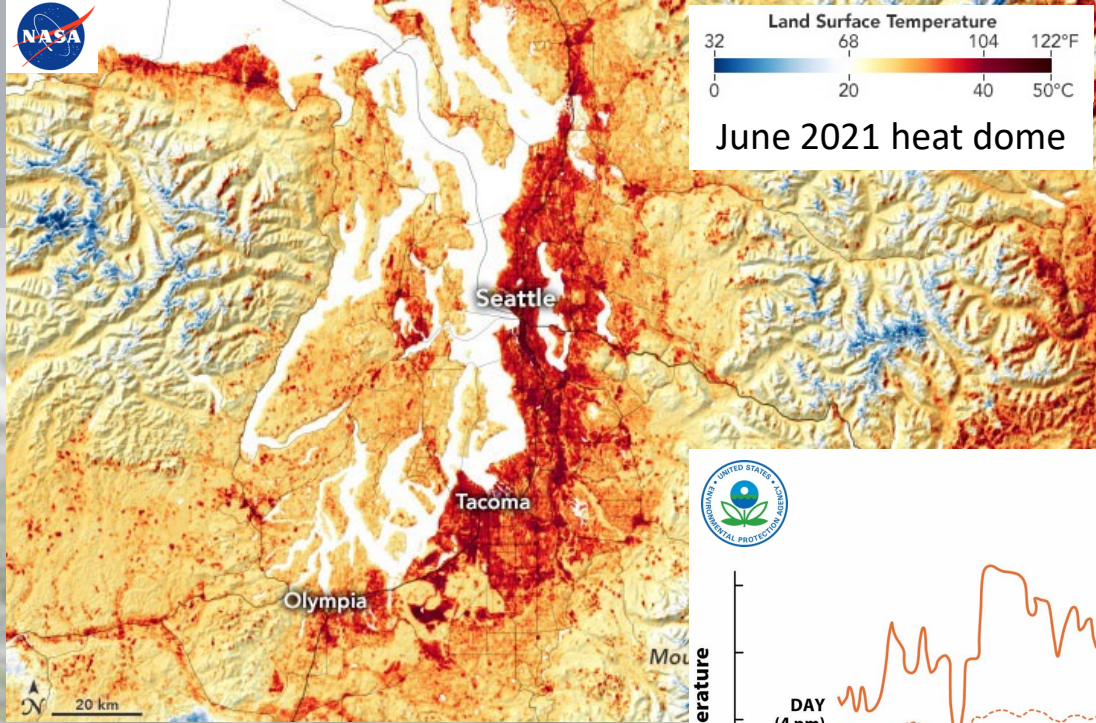
Stormwater management

Includes rain gardens, green roofs, biofiltration systems, and riparian buffers.

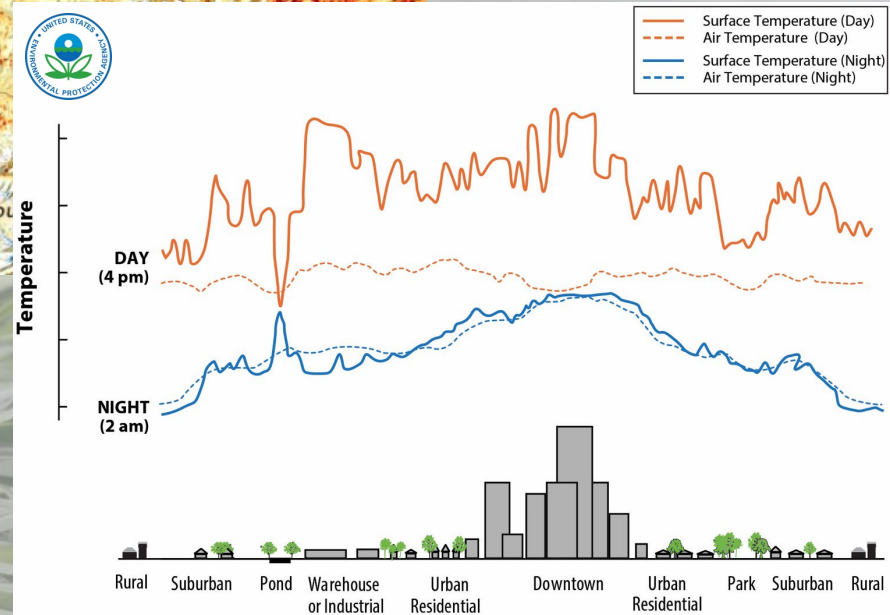


Enhanced nutrient removal

Wastewater treatment plant upgrades allow for the most efficient nitrogen and phosphorus removal processes before water is discharged back into the system.

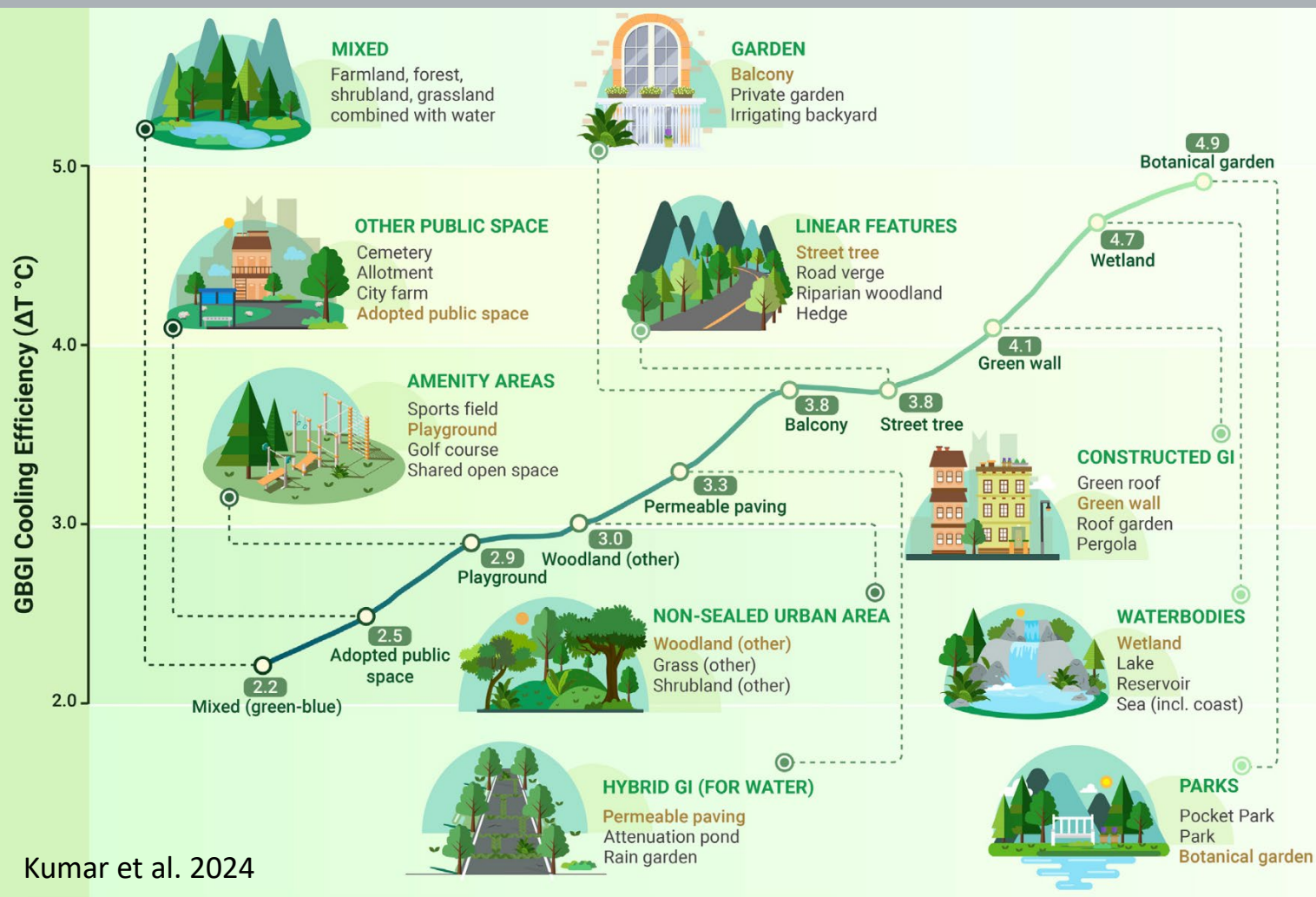


cold water





cold water





- **Modeling & Research** to evaluate the influence of terrestrial-freshwater connections on marine water and habitat quality
- **Analysis** of policies, programs, and state of the science
- **Communication:** Encyclopedia of Puget Sound, Salish Sea Currents

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Thank you!

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