Table 2. Considerations for the FFZ. Fluxes that should be considered for each spatial regime in the FFZ and recommended direction.

Spatial Regime	Fluxes to consider in a comprehensive accounting	Recommended near-term path forward (minimum viable product)
Lower vadose zone and groundwater flow paths	• All the fluxes in the NFZ also apply in this region. • It will be important to understand and identify permanent alkalinity sinks and changes to counterfactual alkalinity generation. • Exchange with the atmosphere is limited or nonexistent.	Largely a priority area for research and development: • Not currently feasible to require monitoring or modeling of processes in the deep vadose zone and along groundwater flow paths in commercial ERW deployments. • Undertaking deep vadose zone monitoring or installing groundwater monitoring wells in a select subset of commercial deployments, where applicable and feasible, is recommended.
Surface water systems	• Outgassing caused by DIC system equilibration. • Carbonate mineral burial. • Changes to organic matter respiration and metabolic activity in stream/river systems, including the influence on aquatic vegetation that directly takes up bicarbonate. • Authigenic clay formation and reverse weathering. • Bedrock interaction with solution and changes to counterfactual alkalinity generation. • Changes to nutrient export and nitrogen cycling.	Focus primarily on: • Outgassing caused by DIC system equilibration. • Carbonate mineral precipitation (assume it doesn't re-dissolve) It is recommended that practitioners assess the potential for net CO_2 loss due to these processes at a minimum in two spatial regimes: in the immediate discharge zone (i.e., the surface water system the weathering flux from a deployment is draining into), and in the major river system of the deployment catchment (i.e., the highest order segment in the deployment catchment).
Ocean	• CO_2 evasion due to carbonic acid system equilibration in the coastal ocean. • Carbon and alkalinity feedbacks due to changes to surface ocean chemistry. • Carbon and alkalinity feedbacks due to changes to diagenetic reactions in shallow marine sediments. • Long timescale marine carbonate burial.	Focus primarily on: • CO_2 evasion due to carbonic acid system equilibration in the coastal ocean. At a minimum, practitioners should derive a conservative assumption of evasion from carbonic acid system equilibration by considering the thermodynamic storage efficiency as a worst-case scenario, assuming complete equilibration with atmospheric CO_2 at representative temperature, salinity, and current atmospheric pCO_2.