Can I apply Hydrocote water-based finishes over oil-based stains? I want to oil a cherry table to deepen its color, but I want a finish with more durability than oil.

Yes, Hydrocote finishes work very well over many oil stains and finishes. Stains containing polyurethane might be problematic, but regular oil stains such as Minwax, or clear finishes such as Watco (except on open-pored wood) or tung oil have been thoroughly proven to work fine. The most reliable technique sounds totally screwy: sand the piece to around 180-220 grit, apply a generous coat of stain, allow the pigment to settle onto the wood for five or ten minutes, then wipe dry. In ideal conditions (75°F and 45% relative humidity) allow to dry more than two hours but less than six (long enough for all the solvent to evaporate), then apply any Hydrocote finish. Yes, we know that completely ignores the rules on the can of stain, but it works! You'll get measurably better adhesion by applying the water-based finish over "green" stain rather than waiting for the oil to begin polymerizing, presenting a hard, slick base beneath your top coats.