The ocean's advective-diffusive transport from the surface into the interior is fundamentally quantified by the ocean's boundary propagator Green function, $G$, which is the joint distribution of locations and times since last ventilation. We estimate $G$ by deconvolving observational tracer data, without making any assumptions about its functional form. The highly underdetermined nature of the deconvolutions is regularized using a maximum-entropy (ME) method that additionally allows estimation of the uncertainty associated with the non-unicity of the deconvolutions. We apply this approach to WOCE line A20 repeat hydrography for CFC-11, potential temperature, salinity, oxygen, and phosphate, as well as GLODAP radiocarbon data, combined with surface boundary conditions derived from the atmospheric history of CFC-11 and the World Ocean Atlas and GLODAP databases. The ME deconvolutions objectively identify key water-mass formation regions and quantify the local fraction of water of age tau or older last ventilated in each region. Ideal mean age and radiocarbon age are also estimated but found to have large entropic uncertainties. Labrador/Irminger seawater (L water) is determined to be mostly less than 40 years old at the northern end of A20 but several decades older where the deep western boundary current recrosses the section further south, pointing to the importance of mixing via a multitude of eddy-diffusive paths. Overflow water lies primarily below L water with waters younger than 40 years at mid-depth in the northern part of A20 and waters as old as 600 years below 3500 m.