Seasonal copepod lipid pump promotes carbon sequestration in the deep North Atlantic -
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Significance Every autumn across the North Atlantic, large numbers of zooplankton copepods migrate from the surface waters into the ocean's interior to hibernate at depths of 600–1,400 m. Through this migration, they actively transport lipid carbon to below the permanent thermocline, where it is metabolized at a rate comparable to the carbon delivered by sinking detritus. This "lipid pump" has not been included in previous estimates of the deep-ocean carbon sequestration, which are based on either measurements of sinking fluxes of detritus, or estimates of new primary production. Unlike other components of the biological pump, the lipid pump does not strip the surface ocean of nutrients, and decouples carbon sequestration from nutrient replenishment, a process we term the "lipid shunt."

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