

Abstract Submitted  
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**Mass Transport by Large Amplitude Internal Solitary Waves<sup>1</sup>**

ALAN BRANDT, KARA BLAINE, Johns Hopkins Univ. APL — Mode-2 internal solitary waves (ISW) (symmetric “bulge” waves) have been observed on pycnocline interfaces in the coastal ocean. Mode-2 ISW with sufficiently large amplitudes can have closed streamlines and regions of internal recirculation resulting in entrainment and transport of mass. To investigate the extent of mass transport, a series of laboratory experiments was conducted in a two-layer stratified channel by releasing a volume of fluid at a density equal to that of the interface. The released fluid formed a series (one to three) of large amplitude mode-2 ISW that propagated along the interface. The extent of mass transport was determined by measuring the volume of the initially dyed release fluid contained within the ISW. It was found that the ISW mass transport was governed by the entrainment of external fluid and leakage from the trailing edge. These effects resulted in the larger amplitude ISW having a smaller mass transport decay rate with distance.

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