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Intrusive gravity currents in two-layer stratified media MORRIS FLYNN, PAUL LINDEN, Univ. of California – San Diego — Intrusive gravity currents, in which a well-defined fluid volume of intermediate density propagates horizontally along a stable interface, arise in a variety of natural settings. Unless the intrusion density is the depth-weighted mean density of the upper and lower layers, a propagating interfacial wave will be generated ahead of the intrusive gravity current. We describe the results of a new study, which combines a Benjamin (1968)-type analysis with shallow-water theory in developing a coupled intrusion-wave model. Favorable agreement is observed with existing experimental and numerical data.

Morris Flynn
Univ. of California – San Diego

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