Abstract View

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Longshore Currents, Upwelling and Bottom Topography

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ABSTRACT

The effect of shelf-like bottom topography on a steady, linear, stratified, three-dimensional model of coastal upwelling is examined. It is shown that the presence of the bottom slope 1) reduces the role of the lower Ekman layer in the upwelling mass balance, and 2) introduces a *barotropic* boundary layer which can, depending on a balance of driving mechanisms, give rise to a deep poleward undercurrent. The structure, amplitude and cause of the undercurrent are distinct from those of the surface equatorward flow.