



## Flux of larval fish around Cape Hatteras

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**ABSTRACT:** Convergence of shelf water flows from the Middle and South Atlantic Bights (MAB and SAB) upon Cape Hatteras, North Carolina, presents a potential barrier to the exchange of fish larvae between bights. Impinging water often turns northeastward with the Gulf Stream, and larvae of both cool temperate and warm temperate/subtropical shelf fishes suffer expatriation. Transient oceanographic features exist, however, facilitating shelf retention, cross-bight exchange, and return of expatriated larvae. The impact of these features is mitigated by specific distribution with relation to hydrography, resulting in a selective permeability of this barrier. Dynamic oceanography may result in dynamic recruitment success. We measured the springtime (1996) flux of seven larval fish species assemblages across the confluence by coupling measured water mass/depth specific larval fish concentration with water mass transport values obtained from an extensive moored instrument survey. Strong flows of shallow shelf water from the MAB to the SAB dominated transport of MAB spawned larvae even for groups with highest concentrations in waters without strong net flows. Most of these larvae passed from the MAB or the open sea into the study region shelf and from there into the SAB. Net flow of SAB water into the convergence retained SAB-affiliated larvae arriving from the south, but nearshore MAB flows transported low numbers from the MAB to the SAB. The importance of this is tied to the unknown point of introduction of these SAB larvae to MAB waters (e.g., well north of the confluence), but northward exchange of SAB-spawned fish was always prevented along the southern MAB shelf.

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