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Killifish are ecologically important components of salt marsh ecosystems, but no studies have determined the importance of locally produced versus allochthonous food sources on a scale of less than multiple kilometers. The goal of our study was to examine diet and movement of the killifish, *Fundulus heteroclitus*, collected from a Maine salt marsh to assess the importance of locally produced versus allochthonous food sources on a scale of several hundred meters. We compared the gut contents and stable isotope signatures of *F. heteroclitus* from four regions along the central river of a Maine salt marsh to the distinct food sources and isotopic signatures of the region of the marsh in which they were caught. *F. heteroclitus* were relying on locally produced food sources even on the scale of several hundred meters. They fed daily in a small area less than 6 ha and maintained relatively strong site fidelities over the course of several months. Phytoplankton and salt marsh detritus both contributed to the high production of *F. heteroclitus*; terrestrial plant detritus was not an important component of their diet. The diet and feeding patterns of *F. heteroclitus* from this small Maine salt marsh were similar to the patterns found in much larger salt marshes, suggesting that locally produced organic matter is essential to the production of these ecologically important fish.