Trophic specialization in a broadly-distributed nearshore pipefish species

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Ecological specialization is an important engine of evolutionary change. The broad-nosed pipefish, *Syngnathus typhle*, is one of the most broadly distributed syngnathid species, and shows considerable intraspecific variation in trophic morphology. We quantified morphological variation within and across a genetically diverse sampling of pipefish populations using geometric morphometrics, and tested for evidence of trophic specialization by comparing individual-level dietary composition with the community of plankton available at each site. While the diets of juvenile pipefish are similar across sites, dietary composition shifts dramatically over the course of ontogeny, and adult populations have distinctive diets consistent with their divergent trophic morphology. Morphological differences found in wild animals are maintained under common garden conditions, indicating that trophic specialization in *S. typhle* is a heritable trait reflecting local adaptation to available resources.