



# Marine Polychaetes: Biology and Ecology

May 17–23, 2026

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Marine soft sediments cover most of the seafloor in the Gulf of Maine and worldwide. Like the ocean itself, they can look drab from the surface—until you dig in. Within the muck is a crowded ecosystem shaped by burrowers, predators, scavengers, and filter feeders, all interacting across chemical and physical gradients that drive nutrient cycling and seafloor function. Polychaete worms are often among the most diverse and abundant animals in these communities, and they play outsized roles in how the seafloor works—mixing sediment, transporting oxygen and nutrients, and forming the nexus of many benthic food webs. The diversity of form and function displayed by this often-overlooked group of worms defies the imagination: a single scoop of mud often contains delicately branched filter-feeders, spaghetti-like deposit feeders, and iridescent, heavily armed predators.

In this week-long seminar we will explore Maine's polychaete fauna in both the field and the lab. Mornings will take advantage of low tides as we visit local intertidal soft-sediment habitats to sample infauna and observe polychaetes in place. Afternoons will be spent in the lab building identification skills using stereo and compound microscopy, live observation, and preserved material, along with regional keys and taxonomic resources. Because polychaetes can be challenging to identify, we will practice practical techniques for collecting, handling, relaxing, preserving, and dissecting to allow us to view diagnostic characters in greater detail. Participants will learn to identify the major families of polychaetes found locally. We'll also opportunistically spend some time with other infaunal invertebrates that turn up in our samples. Throughout the week we will connect identification to biology through direct observation and daily lectures on evolution, anatomy, physiology, behavior, and the ecological roles polychaetes play in Maine's benthic ecosystems. This class is for anyone with curiosity about marine invertebrates, patience for careful microscope work, and a willingness to spend time in muddy field sites.

**Karl Koehler** ([kskoehler10@gmail.com](mailto:kskoehler10@gmail.com)) grew up exploring the tidepools of Maine. He studied Earth and oceanographic science and biology at Bowdoin College. He went on to spend many years teaching outdoor education, leading snorkeling trips, guiding ecotours, and spending free time learning about the strange creatures encountered while diving around the world. He completed a master's degree in marine ecology at San Diego State University studying the effects of eelgrass habitat structure on invertebrate communities. He currently works for the Maine Department of Marine Resources as a benthic ecologist, identifying the organisms found in and on Maine's sea floor to create maps of benthic habitats. He works on developing new interactive taxonomic identification resources and has a deep interest in the breadth and strangeness of marine invertebrates, especially the polychaetes which dominate seafloor abundance and diversity in our region.