

Increasing levels of atmospheric carbon dioxide are causing changes in seawater chemistry in the world's oceans. In estuarine waters, atmospheric CO₂ exacerbates already declining pH due to high productivity and respiration caused by cultural eutrophication. These two sources of CO₂ in estuarine waters may even reduce the buffering capacity of seawater to further increasing levels of CO₂. The effects of reduced pH on estuarine-dependent organisms may be as severe or as variable as those seen in marine organisms, but few estuarine species have been studied. Winter flounder is a commercially important fish species whose landings in Southern New England are at their lowest levels in history and declines in recruitment have been observed in estuaries coastwide. Adult winter flounder spawn in bays and estuaries where their offspring may be exposed to low pH waters. In this study, we exposed juvenile winter flounder to levels of CO₂ projected to occur within this century, to determine its effects on growth and food consumption. Over a 14-day experiment, growth and consumption were reduced in the CO₂-treated fish. However, we detected no difference in their ability to capture live prey in simple predator-prey experiments. Slower growth could affect juvenile survival and adult condition through a variety of mechanisms, suggesting that increases in CO₂ could indirectly impact the winter flounder population.