

Title: Comparing food web models of areas open and closed to trawling in Core Sound, North Carolina, USA

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Abstract: Humans impact aquatic ecosystems, especially from indirect effects of commercial trawling. We are studying such impacts in Core Sound, North Carolina, to identify food web differences in areas that are open and closed to trawling. Data collection has focused on the biomass and abundance of fish and benthic invertebrates for the creation of food web models of these two areas. Six sites in three bays closed to trawling and six sites in adjacent areas open to trawling have been sampled at two depths (shallow, <1m and deep, >2.5m). There was significantly more fish biomass per square meter in the areas open to trawling ($P < 0.001$). There was also a significant interaction effect between depth and trawling ($P = 0.020$). The benthic invertebrates did not show significant differences in biomass between the open and closed trawling areas ($P = 0.322$), but had greater biomass in deep than shallow stations ($P = 0.046$). There was a significant interaction between depth and area closed to trawling ($P = 0.036$), with greatest invertebrate biomass in deep, open to trawling areas. The greater fish and invertebrate biomass in open trawling areas was not expected, but appears to be related to shifts in food web structure.