

Environmental Science Institute Hot Science – Cool Talks
Learning Module for “Brave New Ocean”

Benthic Habitat Loss

Benthic habitats are contained in the seafloor, and benthos can be described as “organisms living on the bottom” of this seafloor habitat.¹ These habitats are analogous to terrestrial ones, except that they are submerged in seawater. Benthic habitats slope downward, in a series of zones: intertidal, subtidal, bathyal, abyssal, and hadal (trenches).¹ Benthos is typically composed of “soft sediment” organisms that play a crucial role in community, ecosystem, and population processes.² These organisms are sensitive to habitat disturbance, which can lead to functional extinction. “Functional extinction refers to the situation in which species become so rare that they do not fulfill the ecosystem roles that have evolved in the system.”² Human disturbances in these benthic ecosystems, like trawling and dredging, can lead to a structural and functional breakdown of oceanic biodiversity.

In the fishing industry, trawls, traps, and dredges are raked across the seafloor, or sit upon it. “The type of physical impact the fishing gear has on the seafloor depends on its mass, degree of contact with the seafloor, and the speed at which it is dragged.”² Dr. Jeremy Jackson, of the Scripps Institute, stated, “the area of sea floor scraped clean by trawling rivals that of all the forests ever cut down on land.” Benthic communities are sensitive to these disturbances and changes in their ecosystem are difficult to recover from. Although these benthic systems can be a challenge to study, research has been fairly conclusive on destruction to shallower, intertidal benthos due to commercial fishing and the trawling processes. For more information, visit:

<http://www.shiftingbaselines.org>

<http://www.scripps.edu/>

¹ Miller, Charles B., *Biological Oceanography*, Blackwell Publishing, Malden, MA, 2004, p. 246.

² Thrush, S. and P.K. Dayton, “Disturbance to marine benthic habitats by trawling and dredging: implications for marine biodiversity,” *Annual Review of Ecology and Systematics*, Vol. 33: 449-473, November, 2002.