In the last quarter of the twentieth century, an innovative three-dimensional graphical technique was introduced into biological oceanography and ecology, where it spread rapidly. Used to improve scientists’ understanding of the importance of scale within oceanic ecosystems, this influential diagram addressed *biological* scales from phytoplankton to fish, *physical* scales from diurnal tides to ocean currents, and *temporal* scales from hours to ice ages. Yet the Stommel Diagram (named for physical oceanographer Henry Stommel, who created it in 1963) had not been devised to aid ecological investigations. Rather, Stommel intended it to help plan large-scale research programs in physical oceanography, particularly as cold war research funding enabled a dramatic expansion of physical oceanography. How graphical representations traveled between distinct research communities in the post-earth satellite era (when new data sources became significant factors) is a key focus here. In this instance, appreciating the divergent intellectual and social contexts of the physical versus the biological environmental sciences is crucial for understanding how the diagram travelled. Marine ecologists utilized the Stommel Diagram to enhance research on biological production in ocean environments—by the 1970s a key concern amid growing alarm about overfishing and ocean pollution. Before the end of the twentieth century, the Diagram had become a significant tool within the discipline of ecology. How Stommel’s graphical techniques traveled from the physical to the biological environmental sciences reveals a great deal about practices in these fields and their relative professional and institutional standing in the post-Sputnik cold war era.