Habitats in the ocean: Identifying biogeographic regions in the Gulf of Maine using satellite observations of sea surface temperature and chlorophyll concentration

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The purpose of this project is to evaluate how the ecology of the Gulf of Maine (GoM) is changing by using biogeographic regions as a framework to analyze satellite data in an ecological context. Unlike the terrestrial environment where biomes are relatively immobile and easily distinguishable, ocean habitats move continuously with currents and are therefore difficult to identify. The drivers of this dynamic ecological structure are the physical and chemical properties that control primary productivity and in turn impact the whole ecosystem through a bottom-up trophic cascade. Although they do not influence ecosystem structure directly, sea surface temperature (SST) and ocean color data serve as good proxies for the properties that do because they are strongly correlated with them[1,2]. With