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Comparison of 4 Northern Hemisphere regions: Ecosystem responses to recent oceanographic variability

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Ecosystem responses to oceanographic variability resulting from recent climate changes are compared and contrasted for four high latitude regions of the Northern Hemisphere, two in the Pacific (Bering Sea and Gulf of Alaska) and two in the Atlantic (Georges Bank/Gulf of Maine and the Barents/Norwegian Seas). Changes in nutrient content and its effect on phytoplankton biomass and production are compared among systems and recent trends towards smaller zooplankton in the Bering Sea and in the Georges Bank region are evaluated. In each of the regions, several fish species show a general poleward movement in response to the warming, as well as more complex, non-linear responses resulting from internal community dynamics and fishing. Observed changes in the abundance, individual growth and species composition of the fish communities are assessed in terms of environmental and fishing effects. Changes in marine mammals and seabirds in the four regions are documented. Comparisons between the different regions are made to identify and distinguish general responses from regionally unique responses. This is a contribution from the Comparison of Marine Ecosystems of Norway and the US (MENU) project.

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