



IODP Expedition 323, Bering Sea, preliminary results: Pliocene and Pleistocene deep water ventilation and surface water productivity inferred from benthic and planktonic foraminiferal faunas

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We present records of benthic and planktonic foraminifera from deep-sea Sites U1340 and U1341, collected from Bowers Ridge in the southern Bering Sea, and Sites U1343 and U1344, collected from the northern Aleutian Basin. They comprise abundant calcareous benthic species that are indicative of reduced oxygen conditions (e.g. *Bulimina*, *Globobulimina*, *Islandiella*, *Nonionella*, *Valvulineria*), and high latitude planktic species indicative of cold water (e.g. *Neogloboquadrina pachyderma sinistral*). Changes in faunal trends record changes to the oceanography of this region over the past 4 Ma. Major faunal shifts occur over episodes of global cooling during the onset of Northern Hemisphere Glaciation, and the Mid-Pleistocene Transition.

The Mid Pleistocene Transition (ca. 0.8–1.1 Ma) was recovered with good foraminiferal preservation at Sites U1340, U1343 and U1344. All sites reveal an increase in the absolute abundance of benthic and planktic foraminifera after this interval, along with a higher variability in low oxygen benthic assemblages and a shift from subpolar to polar planktic assemblages. This may reflect the intensification of glacial/interglacial cycles and changes to surface water productivity after this transition, and appears to have affected the entire Bering Sea.

Late Pliocene cooling and onset of Northern Hemisphere Glaciation (ca. 2.5–3.0 Ma) was recovered at Sites U1340 and U1341, where predominantly agglutinated benthic faunas (possibly dissolution-affected) show very low abundance and diversity (*Martinotiella communis*, *Eggerella bradyi*). The last occurrence of *M. communis* at these sites occurs around this time, and could indicate a change in deep water ventilation.