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## The Illinois Coast of Lake Michigan

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### INTRODUCTION

The Illinois coast of Lake Michigan is one of the state's most dynamic geological settings. Coastal processes of waves, ice, and changing lake levels contribute to yearlong and seasonal erosion and deposition (accretion) along the beaches and across the nearshore lake bottom, although major change also can occur in days or even hours.

The social and economic importance of the Illinois coast cannot be overstated. This coast borders the most populous part of the state and includes some of the most valued real estate in Illinois. It is also the most densely populated coastal area in the entire Great Lakes region and has the region's highest degree of engineering and human modification. Notably, the historical development of Chicago, Waukegan, and the other municipalities along the shore was strongly influenced by the coastal geology.

Despite extensive urbanization, the Illinois coastal zone preserves an exceptional geological record of coastal evolution that spans about 14,000 years, beginning in late glacial time when an ancestral shoreline first formed. A series of ancient shoreline features document how the Illinois coast evolved through changing lake levels and shaping and reshaping by wave-induced erosion, transport, and deposition. The historical record of coastal change also provides numerous examples of how human modification has notably altered the shoreline configuration and has had an impact on local coastal processes. The continuing geological changes along this coast present ongoing engineering and management challenges that will face future generations.

### COASTAL SHAPE AND DYNAMICS

The Illinois coastline extends 63 miles (101.4 km) along the southern reach of the western shore of Lake Michigan (Figure 25-1), 22 miles (35.4 km) of which is the City of Chicago shoreline. North of Chicago, the coast includes 14 near-lake municipalities, the U.S. Navy's Naval Training Center Great Lakes, and state-owned Illinois Beach State Park and North Point Marina. The municipalities from Lake Bluff south to Evanston are collectively called the North Shore. The state's jurisdiction extends across a portion of the lake, covering approximately 1,500 square miles (3,885 km<sup>2</sup>) of lake and lake bottom. The deepest water

within the Illinois extent of Lake Michigan is about 490 feet (149.4 m).



**Figure 25-1** The Illinois coast of Lake Michigan showing municipalities and harbors. The index map shows the configuration of the Illinois state line across Lake Michigan.