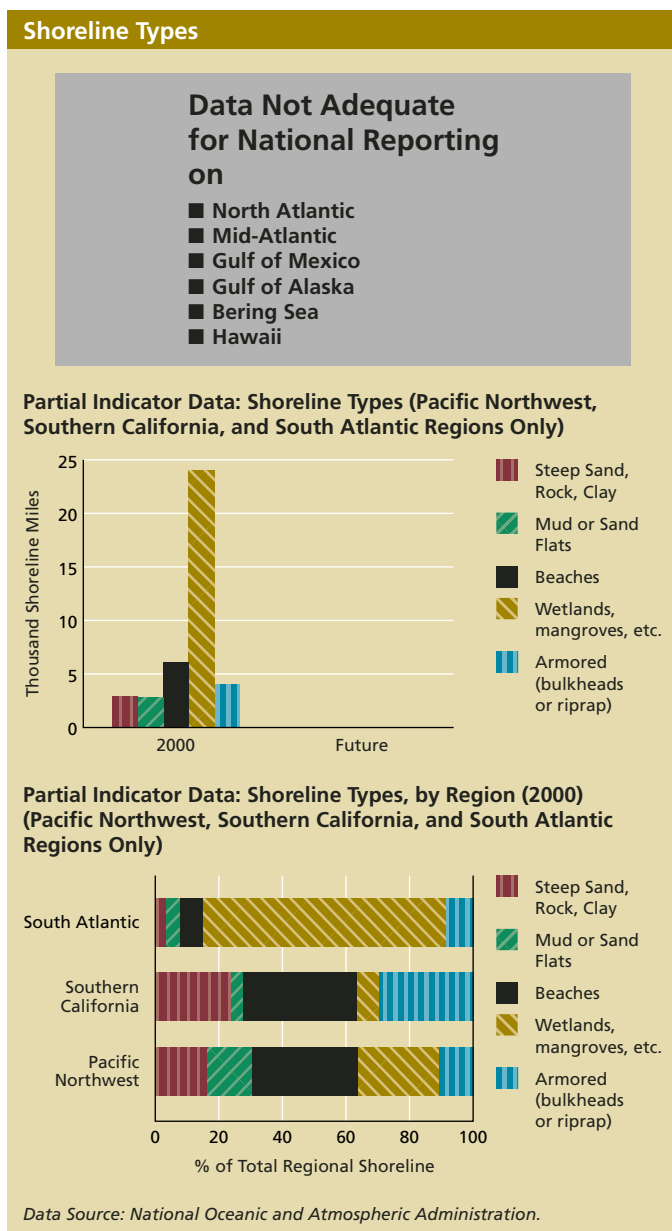


SYSTEM DIMENSIONS	CHEMICAL AND PHYSICAL	BIOLOGICAL COMPONENTS	HUMAN USES
Extent Pattern	Nutrients, Carbon, Oxygen Contaminants Physical	Plants and Animals Communities Ecological Productivity	Food, Fiber, and Water Recreation and Other Services

Shoreline Types



What Is This Indicator, and Why Is It Important? This indicator reports the miles of coastline in several categories, including beach; mud or sand flats; steep sand, rock, or clay cliffs; wetlands; and coastline “armored” with bulkhead or riprap. The coastline includes ocean-front areas and the shoreline of estuaries and bays.

Whether a shoreline is, for example, beach, mudflat, or bulkhead determines how people and wildlife will use that shoreline. Armoring is usually intended to stabilize a beach or shoreline in an attempt to reduce erosion and property loss from storms, coastal flooding, and other processes (see Coastal Erosion, p. 73).

What Do the Data Show? Over two-thirds of the mapped shoreline (37,000 miles) in these three regions is coastal wetlands (24,000 miles), most of which are in the South Atlantic region. Sixteen percent, or 6,000 miles, of the mapped shoreline is beach. Steep shorelines and mud and sand flats each make up about 8% of the total (2,800 miles), while armored shorelines make up about 11% of the total (about 4,000 miles). (These numbers exceed the total shoreline miles because some locations contain multiple shoreline types, e.g., sandy beach backed by a steep cliff.)

Beaches account for about a third of the shoreline of both Southern California and the Pacific Northwest, but these regions differ greatly in other respects. Southern California has a much lower percentage of wetlands and mud or sand flats and a much higher proportion of both steep shorelines and armored shorelines. Three-quarters of the South Atlantic region’s shoreline is wetlands, and nearly 10% is armored.

The National Oceanic and Atmospheric Administration is analyzing data for other regions, but the analysis is not yet complete.

Discussion Besides the benefits mentioned above, bulkheads and other “armoring” can have negative effects on natural coastlines, by isolating coastal wetlands from tidal influence, for example, which can dramatically alter the wetlands. In addition, these structures may provide only temporary erosion control and can ultimately result in complete loss of the beach.

The technical note for this indicator is on page 219.