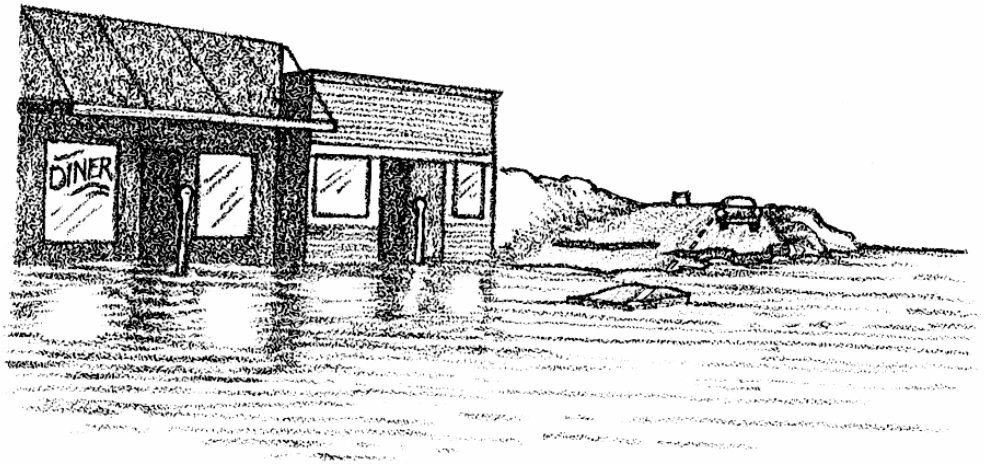
The Effects of Rising Sea Levels

by Kenn Oberrecht



During the earth's long history, global sea levels have fluctuated, falling during the ice ages and rising during periods of global warming. Our most recent ice age ended more than 10,000 years ago. We are now experiencing global warming, which has been accelerated by an excess of heat-trapping gases in our atmosphere.

What makes the current sea-level rise so much more threatening than earlier ones is the worldwide proliferation of humans and their preferences for living in and developing coastal areas. Nearly 75 percent of Americans, for example, live on or within 50 miles of the coast.

Tide-gauge records dating back 100 years indicate a rise in global mean sea level that amounts to one to two inches every 25 years and is increasing. The Environmental Protection Agency (EPA) now predicts a global sea-level rise of about 10 to 15 inches by the year 2025 and an additional 20 inches to more than six feet by 2100.

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Rising seas will increase coastal erosion, pollution, storm damage, and flooding. They'll pose threats to coastal roads, bridges, jetties, breakwaters, docks, piers, and waterfront property. Intruding salt water might contaminate groundwater supplies and threaten landfill and hazardous-waste sites.

Many of the nation's 900 estuaries, where coastal rivers merge with the ocean, could be damaged in a variety of ways. Some would be more vulnerable than others, mainly because of their geology and the amount of shoreline development. Consequently, estuaries along the Atlantic and Gulf coasts would be particularly hard hit, whereas the deep, steep-walled fjord-type estuaries characteristic of the British Columbia and Alaska coasts would be least affected. Here in Oregon, Coos Bay would be one of the estuaries with potential for serious harm.

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With higher sea level, salt water would intrude farther into the estuary, thus increasing salinity and moving the salt front farther upstream. Such destructive organisms as shipworms, gribbles, and barnacles--which require relatively high salinity to survive--could migrate farther up the estuary, attacking wooden structures wherever they thrive.

If the increased salinity were to alter the mixing and flushing rates of the estuary, pollution could increase dramatically. Loss of adjacent wetlands to encroaching salt water would compound the problem.

Our tidal wetlands not only act as nurseries to most of our important marine fishes and shellfishes, but also filter many dangerous pollutants that rivers and creeks carry downstream to the estuary. They also buffer the effects of storms and floods.

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Even the deposition patterns of nutrient-bearing sediments could be greatly altered, thus starving out whole populations of bottom-dwelling organisms.

The rise of global sea levels seems to be inevitable, and the experts are warning us to plan for an increase of 2.3 feet by the year 2050. The key word, here, is plan, because that's our best strategy.

Even as we bear down on the 21st century, there's no high-tech solution to these problems; we can't hold back the seas. Even the EPA's best recommendations are to "retreat and relocate," leaving sufficient buffer zones between the water's edge and all future permanent structures.

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