

**53:171 Water Resources Engineering
Lesson 22: Waves & Runup**

Significant Wave Height

208 WATER-RESOURCES ENGINEERING

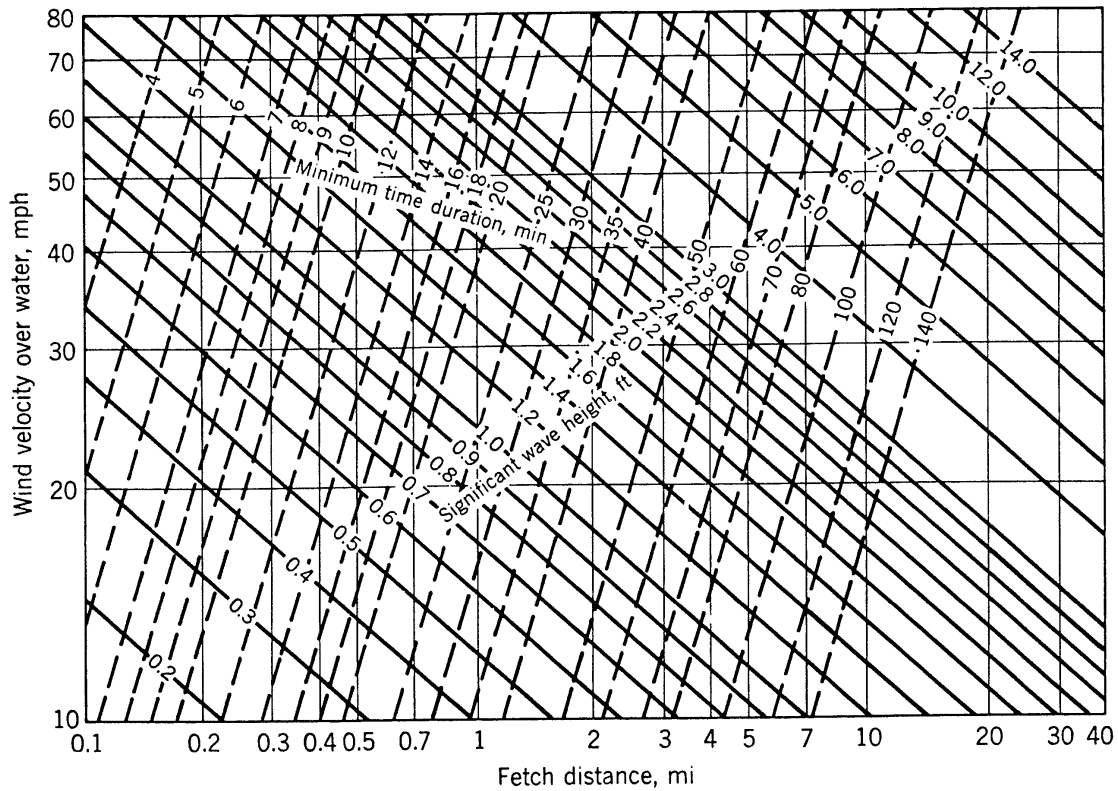


FIGURE 7.14
Significant wave heights and minimum wind durations (From T. Saville, Jr., E. W. McClendon, and A. L. Cochran, Freeboard Allowance for Waters in Inland Reservoirs, *J. Waterways and Harbors Div.*, ASCE, pp. 93–124, May 1962.) For metric version see Appendix B.

Design Wave Height

TABLE 7.4
Percentage of waves exceeding various wave heights greater than z_w *

z'/z_w	1.67	1.40	1.27	1.12	1.07	1.02	1.00
Percentage of waves > z'	0.4	2	4	8	10	12	13

* After Saville, McClendon, and Cochran.

Wind Speed Over Water

TABLE 7.3
Relationship between wind over land and that over water*

Fetch, mi (km)	0.5 (0.8)	1 (1.6)	2 (3.2)	4 (6.5)	6 (9.7)	8 (12.9)
$V_{\text{water}}/V_{\text{land}}$	1.08	1.13	1.21	1.28	1.31	1.31

* After T. Saville, Jr., E. W. McClendon, and A. L. Cochran, Freeboard Allowances for Waves in Inland Reservoirs, *J. Waterways, Harbors Div., ASCE*, pp. 93-124, May 1962.

Wave Runup

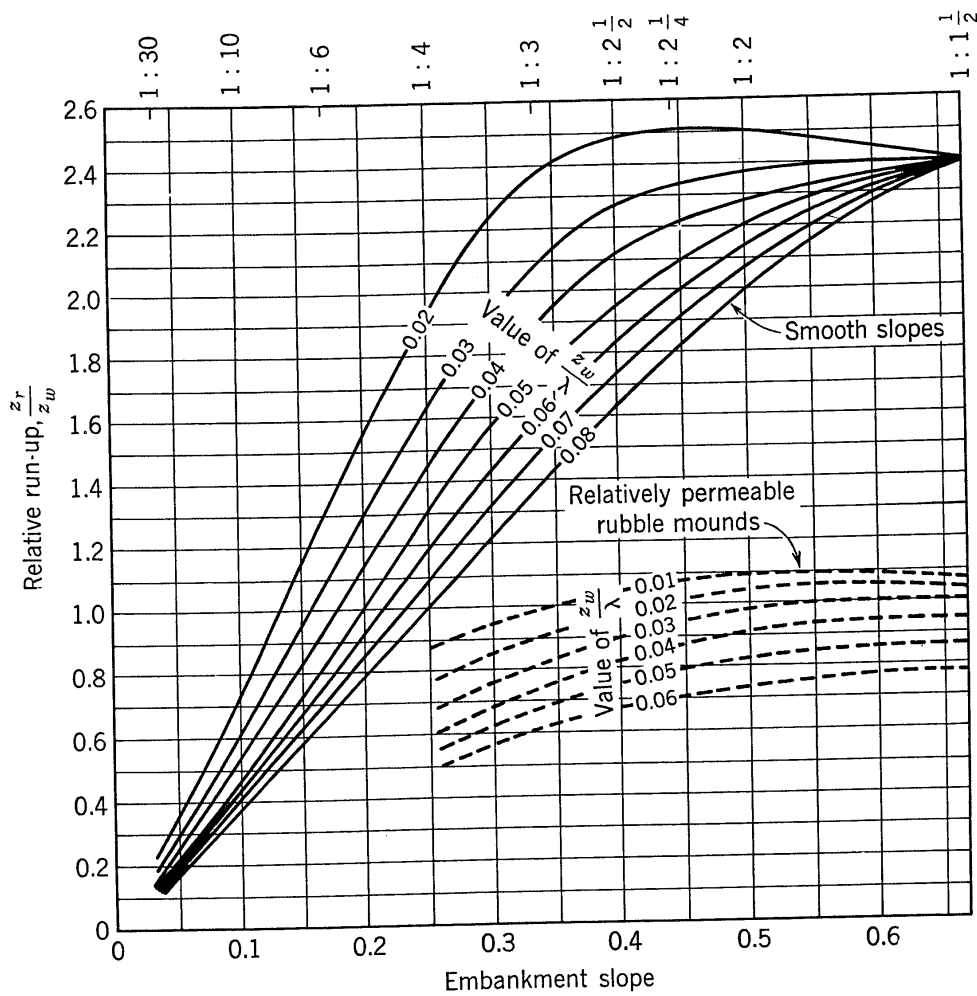


FIGURE 7.16
 Wave run-up ratios versus wave steepness and embankment slopes. (From T. Saville, Jr., E. W. McClendon, and A. L. Cochran, Freeboard Allowance for Waters in Inland Reservoirs, *J. Waterways and Harbors Div., ASCE*, pp. 93-124, May 1962.)