NUMERICAL MODELING OF GROUNDWATER FLOW BEHAVIOR IN RESPONSE TO BEACH DEWATERING

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Table 2.2: Beach Dewatering Installations since 1981 to 2004

Beach Drain Module	Project	Year of Installation	Length of System (m)	Tidal Range (m)	Initial Beach Slope	Sand Grain Size (d_{50}/U)	Pump Capacity (m^3/h)	Drain Materials Installation Method	Comments
1	Hirtshals W, Denmark	1981	200	1.5	1:20	0.26/1.7	400	a-1	25, 000 m^3 sand harvested each year to renourish other beaches
2	Hirtshals E, Denmark	1983	200	1.0	1.25	0.2/1.3	100	a-1	Width maintained (back-ground erosion rate: 7 m/ year)
3	Thorsminde, Denmark	1985	500	1.5	1.25	0.35/1.7	700	a-1	Experimental system, width increased by 25 m
4	Sailfish Point, Florida, USA	1988	177	0.8	1.25	0.3/3	340	b-1	Width increased by 20-25 m during operation. Ceased operation following neighboring nourishment program.
5	Englewood Beach, Florida, USA	1993	200						Experimental well-point system. Damaged by storm events & not reinstated.
6	Enoe Strand, Denmark	1994	600	0.5-1.0	1:15	0.25/2.3	300	c-2	Width increased by 3 m August 1996. Maintained.
7	Towan Bay, U. K.	1994	180	7	1:45	0.2/1.7	200	d-1	Improved amenity (dry low tide). Exposed seawall footing safeguarded
8	Codfish Park Nantucket I, MA, USA	1994	357	1.0-1.5	1:45	1.5/4.2	700	e-3	Decreased in shoreline width due to storm events. Shoreline erosion rate in the treated areas has been reduced compared to untreated areas.
9	Lighthouse S Nantucket I, MA, USA	1994	309	1.0-1.5	1:06	0.8/3.2	1400	e-3	
10	Lighthouse N Nantucket I, MA, USA	1994	405	1.0-1.5	1:06	0.4/3.7	1400	e-3	
11	Holme Beach, Norfolk, U. K.	1996	200	3.5					Temporary trial system at remote nature reserve
12	Chigasaki- Naka Beach, Japan	1996	180	1.6	1:10	0.5/4	500	f-3	Temporary shut down due to typhone damage. Repaired and reactivated. Shoreline stabilized. Beach level increased.
13	Riumar I, Ebro Delta, Spain	1996	300	0.2-0.4	1:20	0.2/1.4	290	g-1	Width maintained after severe storm event in Oct 97.