

**Table 5. General Suitability of Main Hazard Alleviation Techniques (HATs)**

S = Suitable for at least some sites or areas  
 N = Not likely to be suitable for any sites or areas  
 M = May be useful or necessary in the future

<b>1. Hard (Structural) HATs</b>		
Revetment (Riprap)	S	Riprap revetments are widely used in Neskowin
Bulkhead	N	Minimal use in Neskowin; effective only for a few special situations
Seawall	N	Minimal use in Neskowin; more costly than riprap
Sand bypass	N	Not applicable; mainly useful on types of beaches found on US east coast
Sill (for "perched beach")	N	Not applicable; mainly useful on types of beaches found on US east coast
Groin	N	May have regulatory problems; expensive; major barrier to public access
Jetty	N	Not applicable to Neskowin; used only at mouths of navigable waterways
Artificial reef	N	Not suitable: very high costs; doubtful effectiveness
Breakwater	N	Probably not suitable: very high costs; doubtful effectiveness
Reef breakwater	N	Probably not suitable: very high costs; doubtful effectiveness
<b>2. Soft (Nonstructural) HATs</b>		
Beach nourishment	M	Not yet used in Neskowin, but could prove effective; costly; source of sand uncertain
Dune management	M	Difficult to use with a depleted sand base; requires Dune Management Plan
Dune stabilization	M	Some potential in northern part of village, along with dune management
Buffer dune	N	Probably not feasible in Neskowin's active wave environment
Dynamic riprap	N	Used at Cape Lookout, but not feasible at Neskowin; would eliminate sandy beach
<b>3. Development HATs</b>		
Abandon structure	S	May be only alternative for certain properties at extreme risk
Elevate structure	S	Feasible for some existing structures; could be required of some new structures
Make structure movable	S	Feasible for some existing structures; could be required of some new structures
Relocate structure	S	Feasible for some existing structures at extreme risk
Relocate community	M	Contingency plan could be developed for extreme events or unforeseen changes
Relocate infrastructure	S	Feasible (and perhaps necessary) in some at-risk areas
Control runoff and drainage	S	Low-cost, practical HAT for most bluff-backed sites and some other sites
Modify structure	S	On some sites, structural reinforcement or modification may alleviate erosion hazard
<b>4. Policy and Planning HATs</b>		
Compensatory mitigation	M	Potential source of revenue for erosion-control measures; not now used in Oregon
Conservation easement	M	Could be applied to at-risk sites or areas, in conjunction with other measures
Floor elevation COD (Condition of Development)	S	Now done through FEMA; higher standards could be adopted for sites or areas at risk from ocean flooding
Require geologic reconnaissance (COD)	N	Proposed by some as an alternative to full-fledged geotech reports; geologists have expressed doubts about effectiveness and propriety of superficial geological evaluations
Require geotech report (COD)	S	Important HAT for reducing erosion and flooding risks for future development; already required for development of some types in Tillamook County
Indemnification (COD)	S	Important HAT for reducing public's liability for private risk-taking
Land div. standards (COD)	S	Current land division standards could be increased for at-risk sites and areas
Liability waiver (COD)	S	Important HAT for reducing public's liability for private risk-taking
Safe-site requirement (COD)	S	Useful land-division requirement to ensure proper siting of future development
Floodplain management	S	Now done through FEMA; higher standards could be adopted for at-risk areas
Hazard-area overlay zone	S	Important HAT for reducing erosion and flooding risks for future development
Prohibition of development	S	Development of some sites at high risk from coastal hazards could be barred.
Public notice and review	S	Essential part of any community or county action; can be time-consuming and costly
Public education	S	Important part of any community or county action; can be time-consuming and costly
Purchase of development rights	M	Used to establish conservation easements; costly
Setback	S	Setbacks from dune or bluff scarps could be required of future development
Transfer of development rights	M	Could be useful with abandonment or relocation HATs; require changes in state law