



**Department of
Environmental
Conservation**

Coastal Management

Coastal communities with local CEHA ordinance laws need to complete and submit the Local Coastal Erosion Hazard Area Management Program Annual Assessment Form (PDF, 338 KB) by March 1, 2016.

Why do coastal erosion areas need to be managed?

Natural protective features (beaches, dunes and bluffs) within coastal erosion hazard areas provide buffering and protection to shorelands from erosion by absorbing the wave energy of open water. Dunes and bluffs are especially effective against storm-induced high water. They are also reservoirs of sand and gravel for beaches and offshore sandbar and shoal formations.

Certain sections of New York's coastline are especially vulnerable to coastal erosion through natural actions and through human activities. Erosion is the loss or displacement of land along the coastline due to the action of waves, currents, tides, wind-driven water, waterborne ice, or other impacts of storms. It also means the loss or displacement of land due to the action of wind, runoff of surface waters, or groundwater seepage.

In vulnerable areas, coastal erosion causes extensive damage to public and private property and to natural resources and endangers human lives. This has resulted in significant economic losses to individuals, private businesses and the state's economy. Coastal erosion damage has necessitated large public expenditures to remove debris and ruined structures, and to replace essential public facilities and services.

The management of coastal erosion hazard areas helps to protect coastal habitat areas, inland natural resources, homes, businesses, and communities from wind and water erosion and storm induced high water.

Natural causes of coastal erosion

Coastal erosion is a natural phenomenon, an endless sediment redistribution process that continually changes beaches, dunes and bluffs. Waves, currents, tides, wind-driven water, ice, rainwater runoff and groundwater seepage all move sand, sediment and water along the coast.

Other contributing factors that can significantly increase coastal erosion of a natural protective feature include length of fetch; wind direction and speed; wave length height and period; nearshore water depth; tidal influence; and overall strength and duration of storm events.

Combinations of these factors and events can amplify these effects by increasing water levels; increasing storm rise; increasing the distance waves reach inland; producing damaging waves; driving ice "plates" along the shore scouring beaches and bluff areas; reducing sand from beaches; and allowing water and wave action further inland intensifying coastal erosion of beaches, dunes and bluffs.

Coastal flooding is caused by ocean water rising above normal tidal elevation. Flooding occurs when strong winds and/or high tides drive ocean water inland through inlets, waterways, channels, and wetlands. Coastal flooding on the Great Lakes occurs when strong wind and storms increase water levels. When coastal flooding occurs, it is a temporary and sudden condition.

Human causes of coastal erosion

Human activities, such as construction, shipping, boating and recreation can increase coastal erosion of sandy beaches, dunes, and bluffs.

Even though natural events play a major role in the coastal erosion process, human actions can intensify the

effects of these processes and speed up the coastal erosion process.

Humans contribute to the coastal erosion process:

- by removing vegetation, exposing bare soil to be easily eroded by wind, wave and precipitation,
- directing runoff from streets, parking lots, roofs, and other locations over a bluff edge causing it to erode,
- or by constructing "hardened" structures on the shore that block the movement of sand along the coastline, reflect wave energy onto adjacent shorelines, or cause deepening of the nearshore area.

Human activities associated with day-to-day living tend to speed up coastal erosion processes in some places.

Many development activities damage or alter natural protective features and the protection these features afford the upland area from coastal erosion and storm damage.

These activities include:

- building without considering the potential for damage to property or natural protective features
- activities which destroy natural protective features such as dunes or bluffs and their vegetation
- building structures intended for coastal erosion prevention which may exacerbate coastal erosion conditions on adjacent or nearby properties, and
- wakes from boats that produce wave action on the shoreline.

Building coastal erosion protective structures, either by private or public funds, are extremely costly projects. These structures often are only partially effective over time and may increase the erosion potential to adjacent or nearby properties.

New York's Coastal Waters

- Lake Erie* and the Niagara River
- Lake Ontario* and St. Lawrence River
- Atlantic Ocean* and Long Island Sound*
- Hudson River south of the federal dam in Troy
- East River
- Harlem River
- Kill van Kull and Arthur Kill
- All connecting water bodies, bays, harbors, shallows, and wetlands

The coastlines along Lake Erie and Lake Ontario, Long Island Sound, and the Atlantic Ocean coastline of NYC and Long Island are at risk to coastal erosion from natural and human activities and are regulated. *These are the only areas currently mapped as coastal erosion hazard areas require a Coastal Erosion Hazard Area (CEHA) permit (Article 34 Part 505(link leaves DEC's website)) for any regulated activity.

How does DEC protect coastal areas?

Coastal erosion's threat to life and property can be minimized by regulation of land use, development, new construction or placement of structures, and by controlling construction of coastal erosion protection structures in coastal areas designated as coastal erosion hazard areas.

DEC has two programs focused on the protection of coastal erosion: Coastal Erosion Hazard Area (CEHA) permit program and the United States Army Corps of Engineers (US ACE) Civil Works Program. The CEHA program regulates and issues permits for activities within a coastal erosion hazard area. DEC works with US ACE to study coastal erosion problems along coastlines and to develop coastal erosion solutions. These are usually large scale projects that impact entire communities.

New York State prevents and reduces coastal erosion by:

- promoting and preserving the natural protective features such as dunes and bluffs, beaches and nearshore areas of coastal regions;
- restricting or prohibiting activities or development in natural protective feature areas
- ensuring new construction or structures are a safe distance from areas of active coastal erosion and the impact of coastal storms;
- regulating the placement and construction of coastal erosion protection structures, when justified, to minimize damage to property, natural protective features and other natural resources;
- restricting development involving public investment in services, facilities, or activities (for example, extending public water supply and sewer services) which are likely to encourage new permanent development in coastal erosion hazard areas;
- requiring publicly financed coastal erosion protection structures intended to minimize coastal erosion damage to be used only where necessary to protect human life or where the public benefits of such structures clearly outweigh the public expenditures;
- encouraging administration of coastal erosion management programs by coastal municipalities and establishing procedural standards for local program implementation; and establishing standards for the issuance of coastal erosion management permits (Part 505(link leaves DEC's website)).

More about Coastal Management:

How are coastal areas regulated by the CEHA Permit Program? - Information about how the CEHA Permit Program regulates coastal areas.

Coastal Erosion Control Design - guidelines for designing structures

CEHA Map Revision Process - Information about how CEHA maps are revised.