

# Marina Maintenance and Modification

## Environmental Concerns

Land management decisions, operating procedures, and structural improvements may all contribute to, or detract from, the quality of the land and water surrounding your marina. Poorly planned roads and parking areas may convey polluted stormwater directly into adjacent waterways. Dredging may resuspend toxic compounds such as heavy metals, hydrocarbons, and synthetic chemicals. Hazardous chemicals may leach into the water from piers and other similar structures. Broken or degraded floats may release buoyant debris which birds and fish mistake for food. Finally, the location and installation of shore side and in-water structures may accelerate coastal erosion and sedimentation. Sedimentation is the rain of soil particles through the water column. It may bury bottom dwelling organisms, block sunlight, reduce the feeding efficiency of visual feeders, and clog fish gills.

## Pertinent Laws and Regulations

### CAFRA

#### The Coastal Area Facility Review Act

The Coastal Area Facility Review Act (CAFRA) applies to projects near coastal waters in the southern part of the State. CAFRA regulates a wide variety of residential, commercial, and industrial development, including construction, relocation, and enlargement of buildings or structures; and associated work, such as excavation, grading, site preparation, and the installation of shore protection structures. CAFRA prescribes designs for new marinas that promote water quality and protect public health.

CAFRA exempts certain minor activities such as maintenance, plantings, decks or similar structures at a residence, rebuilding a damaged structure on the same building footprint (if it was damaged after 7/19/94). Contact the NJDEP, Land Use Regulation Program for information regarding CAFRA including information concerning exempt activities.

#### The Waterfront Development Law

The Waterfront Development Law limits conflicts that new development might pose for navigation, marinas, moorings, other existing uses, and the environment.

With few exceptions, development in a tidally flowed waterway anywhere in New Jersey requires a Waterfront Development Permit. Examples of projects that need a Waterfront Development Permit include docks, piers, pilings, bulkheads, marinas, bridges, pipelines, cables, and dredging

Outside of the CAFRA area, the Waterfront Development Law also regulates the area adjacent to the water, extending from the mean high water line to the first paved public road, railroad or surveyable property line. The regulated area extends at least 100 feet but no more than 500 feet inland from the tidal water body. NJDEP must authorize construction, reconstruction, alteration, expansion or enlargement of structures, excavation, and filling that would occur in the regulated area.

The Waterfront Development Law provides exemptions for the repair, replacement, or reconstruction of some legally existing docks, piers, bulkheads, and buildings, if the structure existed before 1978 and if other conditions are met. Again, contact the NJDEP for specific information about exemptions.

### Wetlands Act of 1970

The Wetlands Act of 1970 (N.J.S.A. 13:9A) provides the authority for NJDEP to regulate development in coastal wetlands. The regulated coastal wetlands are shown on maps prepared by the NJDEP and are used to determine jurisdiction. You must have a coastal wetlands permit to excavate, dredge, fill or place a structure on any coastal wetland shown on the maps.

The land immediately adjacent to tidal waters often contains coastal wetlands. Some signs that may indicate the presence of wetlands are tall reeds and grasses or ground that is often soggy. Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance. For regulatory purposes under the Federal Clean Water Act, the term wetlands means “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands are a vital coastal resource serving as habitat for many creatures. The wetlands also serve as buffers that protect upland areas from the flooding and damage caused by storms.

### Freshwater Wetlands Protection Act

The Freshwater Wetlands Protection Act (N.J.A.C. 13:9B) was enacted to preserve wetlands from random, unnecessary or undesirable alteration or destruction. In March 1994, New Jersey assumed permit jurisdiction of the Federal Section 404 permit program in certain “non-navigable” waters within state jurisdiction. The United States Army Corps of Engineers (USACE) retains regulatory authority over wetlands for which the state was not provided the provision of assumption by the Federal Clean Water Act.

### United States Army Corps of Engineers

The majority of marina development and expansion projects, including dredging, will require a federal permit. Section 10 of the Rivers and Harbors Act of 1899 gives the USACE authority to regulate all work and structures in navigable waters of the United States. Section 404 of the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act) regulates discharges of dredged or fill materials into navigable waters, including wetlands.

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If an USACE Section 404 permit is required, the NJDEP must investigate the site before construction. The NJDEP will evaluate water quality issues and the potential for pollution and adverse effects to living resources caused by marina siting and construction. The Water Quality Certification process ensures that federally permitted activities do not violate New Jersey's water quality standards. The Water Quality Certification issued by NJDEP is then incorporated into the federal permit.

### Best Management Practices for Marina Facilities and Structures

#### Enhance Water Circulation.

While being mindful of the need for pier/dock systems to provide access during routine operations and under emergency circumstances (e.g., evacuation preceding or during a storm), situate piers and other structures to enhance, rather than obstruct, water circulation.

- (5) Select an open design when expanding a marina. Open marina designs have no fabricated or natural barriers to restrict the exchange of ambient water and water within the marina area.
- (5) Install wave attenuators to reduce the force of incoming water, if protection is necessary. Wave attenuators do not restrict water exchange and do not interfere with bottom ecology or aesthetic view. Furthermore, they are easily removed and do not significantly interfere with fish migration and shoreline processes.
- (5) Design marina expansion with as few segments as possible to promote circulation within the basin. The fewer the segments, the better the circulation.
- (1) Aerate poor circulation areas with a bubbler system.

(16) Total Points for BMP

Total N/A Points


#### Use Environmentally Neutral Materials.

- (5) For new pilings and other structures that are in or above the water, use materials that will not leach hazardous chemicals into the water and which will not degrade in less than ten years time, e.g., reinforced concrete, coated steel, recycled plastic, plastic reinforced with fiberglass, fiberglass wrapped CCA treated pilings.
- (1) Be sure to contain shavings when field cutting plastic pilings and timbers.
- (5) Avoid using wood treated with creosote for pilings and similar structures that are in or above the water.
- (5) Avoid exotic timbers. Some tropical trees, such as greenheart and bongossi, are naturally durable. Their harvest, however, is harmful to tropical forests.
- (5) Purchase floatable foams that have been coated or encapsulated in plastic or wood. As these floats age, the covering contains the degraded foam.







(21) Total Points for BMP

Total N/A Points

**Limit Shading of Water.**

- (1) Near-shore bottom-dwelling organisms require sunlight. In order to provide them with as much sunlight as possible, remove as many covered slips as possible.
-  New Jersey’s Waterfront Development Law prohibits construction of new covered slips.

For all new pier construction and reconstruction of an existing pier:

-  Maximize the space between horizontal planking and minimize the width of the horizontal planking to the greatest practicable extent. Typically, a minimum of 3/8inch, 1/2 inch, 3/4 inch, or one inch space should be provided for four inch, six inch, eight to 10 inch, or 12 inch or more wide planks, respectively.
-  Limit the width of floating docks to no more than eight feet.
-  Design a pier so that its width does not exceed twice the clearance between the bottom of the stringers and the ground or the water surface at mean high tide. Typically, the width of the pier should not exceed eight feet over water and six feet over wetlands and intertidal flats.
-  Design a pier so that its height over wetlands is not less than four feet.
-  Provide at least eight feet of open water between parallel piers if their combined width exceeds eight feet.
-  Provide at least four feet of open water between the marina property line and a pier that is oriented perpendicular to the water’s edge.

(1) **Total Points for BMP**

**Total N/A Points**

**Minimize Dredging Needs.**


Existing marinas that require maintenance dredging more frequently than once every four years should investigate practicable options to increase circulation or reduce sediment accumulation.

- (1) Extend piers and docks into naturally deep waters.
- (1) Locate slips for deep draft boats in naturally deep water.
- (5) Follow the course of the natural channel in your dredging proposal. Provide dry storage for smaller boats.



(7) **Total Points for BMP**

**Total N/A Points**

**Minimize Dredging Impacts.**

-  Schedule dredging around critical life stages of marine organisms and during colder months when dissolved oxygen levels are naturally high. (N.J.A.C. 7:7E-3.5 and 7.3A). Contact NJDEP to determine when these periods occur.


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- ✓ (5) Avoid colonial waterbird nesting areas and historic waterfowl staging and concentration areas. Proximity to these areas is often a permitting consideration.
-  State regulations encourage a variety of BMPs to reduce adverse impacts to areas of ecological importance. BMPs are designed to:
- reduce the generation of suspended sediments at the dredging site,
  - reduce the migration of contamination when dredging,
  - reduce turbidity in the upper water column, and minimize impacts to benthic communities, anadromous and migratory finfish, nesting shorebirds, colonial waterbirds, etc.
-  Ensure that your dredging contractor selects an appropriate disposal site and containment design. The disposal site must not result in significant adverse impacts to terrestrial or aquatic ecosystems or pose risks to public health. Dredge material must be disposed of in accordance with the guidelines specified in NJDEP's technical manual entitled, The Management and Regulation of Dredging Activities and Dredged Material in New Jersey's Tidal Waters, Oct. 97.
- ✓ (5) Employ dredging methods that have minimal detrimental environmental consequences such as hydraulic dredging.
- ✓ (1) Use turbidity curtains to contain suspended sediments.

(11) Total Points for BMP

Total N/A Points

### Employ Nonstructural Shore Erosion Control Measures.

-  When shore erosion control measures are necessary, wherever possible, employ nonstructural measures, such as beach nourishment, marsh creation, and other methods that encourage the preservation of the natural environment (N.J.A.C. 7:7E-7.11).
- ✓ (5) Minimize the adverse effects of erosion control projects on adjacent properties, navigation, threatened or endangered species, significant historic or archaeological resources, and oyster bars.

(5) Total Points for BMP

Total N/A Points

### Conserve Water.

- ✓ (1) Equip all freshwater hoses with automatic shutoff nozzles.
- ✓ (1) Fix leaks and drips.
- ✓ (1) Install "low-flow" faucets, toilets, and showerheads.

(3) Total Points for BMP

Total N/A Points

**Maintain Structures Using Clean Marina Practices.**

✓ (1) Scrape, sand, and paint in-water and on-land structures according to the same management principles as you apply to vessels (refer to the Vessel Maintenance and Repair chapter).

✓ (1) Move floating structures to shore for scraping, painting, and major repairs.

(2) **Total Points for BMP**       **Total N/A Points**

**Provide Public Access to the Waterfront.**

Public access to the waterfront is the ability of all members of the community at large to pass physically and visually to, from and along the waterfront.

✓ (5) Provide perpendicular and linear access to the waterfront to the maximum extent practicable.

✓ (5) Clearly mark the public access and provide parking where appropriate.

✓ (5) Provide for barrier free public access where practicable.

(15) **Total Points for BMP**       **Total N/A Points**

**Best Management Practices for Protecting Sensitive Areas**

**Minimize Impervious Areas.**

✓ (5) Keep paved areas to an absolute minimum, e.g., designated work areas and roadways for heavy equipment only.

(5) **Total Points for BMP**       **Total N/A Points**

**Use Upland and Inland Areas.**

✓ (5) Locate buildings, workshops, and waste storage facilities in upland areas, as distant from fragile shore side ecosystems as possible. Upland areas also provide a measure of protection against floods.

✓ (5) Locate parking and vessel storage areas away from the water.

✓ (5) Conduct boat repair activities and winter storage inland. Hydraulic trailers can facilitate moving boats to inland storage locations.

✓ (5) Locate new septic systems at least 100 feet from the water’s edge in soils with a depth to the seasonal high water table of at least four feet.

(20) **Total Points for BMP**       **Total N/A Points**

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### Expand Upward.

- \_\_\_ ✓ (5) Rather than adding wet slips, expand storage capacity by adding dry-stack storage. Boatels provide the following environmental benefits:
- Dry-stacked boats do not accumulate marine growth. Consequently, toxic antifouling paints are unnecessary and the associated need to wash, scrape, and paint is eliminated.
  - Dry-stacked boats are less likely to accumulate water in their bilges. Therefore, they are less likely to discharge oily bilge water.
- \_\_\_ ✓ (5) Control stormwater runoff from dry-stack areas as well as from any expanded parking areas.
- \_\_\_ ✓ (1) Keep forklifts well tuned to prevent grease or oil from dripping onto staging areas or into the water.

(11) Total Points for BMP

Total N/A Points

### Conserve Sensitive Land.

- \_\_\_ ✓ (5) Provide a serene setting for your marina by placing adjacent, sensitive land in a conservation trust. Income, estate, and property tax benefits are available.
- \_\_\_ ✓ (5) Participate in conservation easement programs to preserve farmland, forestland, waterfront, wetlands, rare or unique areas, scenic areas, endangered species habitat, historic properties, and open space.
- \_\_\_ ✓ (5) Sell or donate the land (or the development rights to the land) to a local land trust or a non-profit organization such as The Nature Conservancy.

(15) Total Points for BMP

Total N/A Points

### Practice Water-wise Landscaping.

Save on water bills, reduce your maintenance activities, and protect water quality by minimizing your water use.

- \_\_\_ ✓ (5) Water plants only when necessary. Indicators include wilting shrubs and grass that lies flat and shows footprints. Water in the cooler early morning or early evening to avoid stressing plants and to minimize water evaporation.
- \_\_\_ ✓ (5) Select plants suited to the existing conditions (i.e., soil, moisture, and sunlight) so that they will require little care in terms of water, fertilizer, and pesticides. Refer to Appendix IV for a representative list of beneficial plants.
- \_\_\_ ✓ (1) Water deeply and infrequently rather than lightly and often. Deep watering promotes stronger root systems that enable plants to draw on subsurface water during hot spells and droughts.

- ✓ (5) Employ equipment that delivers water prudently. Sprinklers work well for lawns. Soaker hoses or drip irrigation systems deliver water directly to the roots of shrubs, flowers, and vegetables with minimal loss to evaporation.
- ✓ (1) Place mulch (wood chips, bark, dry grass clippings, nut shells, etc.) to a depth of 3-4" around plants to keep water in the soil, prevent weeds, and reduce the quantity of sediment picked up by stormwater. Planting groundcovers at the base of trees serves the same function.
- ✓ (1) Cluster plants with similar water requirements. This practice will ease your maintenance burden, conserve water, and benefit the plants.
- ✓ (5) Replace lawn areas with wildflowers, groundcover, shrubs, and trees.
- ✓ (5) Recycle "gray water." Gray water is water used once for dishwashing or in a washing machine, but is not overly contaminated. It can be filtered and used to water landscaped areas. However, regulations vary, so be sure to check local ordinances for permit requirements and written approval before pursuing this option.
- ✓ (1) Direct downspouts into covered containers. Use the collected water on your landscaped areas.

**(29) Total Points for BMP**

**Total N/A Points**

### Adopt Integrated Pest Management Practices.

Because of your proximity to the water, it is important to avoid the use of potentially hazardous lawn and garden chemicals whenever possible. Instead, deter unwanted plants or animals with integrated pest management practices. Integrated Pest Management, or "IPM" employs preventive, cultural, biological, and chemical methods to control pests while minimizing impacts to non-target species, wildlife, and water quality.

- ✓ (1) Select disease and insect resistant plants that will out-compete common weeds, and that can thrive on your property. Refer to the Master Gardener list of native plants (Appendix IV) and take into consideration sun exposure, slope, drainage, shade, wind, volume of foot traffic, soil type, temperature variations, and other environmental factors. (For sources of native plants visit the Native Plant Society of New Jersey at [www.npsnj.org](http://www.npsnj.org).)
- ✓ (1) For rodent problems, correct the sanitation situation or other factors that attract rodents and employ non-chemical controls. Only when absolutely necessary, use chemical bait in bait boxes that meet accepted criteria of "tamper resistant" to children and non-targeted animals.
- ✓ (1) Mow lawn areas properly to suppress weeds. Mow varieties of grass that grow better in cooler weather to no less than 2.5 inches in height. Mow grasses that grow better in warm weather to no less than 1.5 inches.
- ✓ (1) Pull weeds by hand to reduce reliance on herbicides.

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- \_\_\_ ✓ (1) Boost your own tolerance for weeds and other pests. If it is not harming anything, leave it alone.
- \_\_\_ ✓ (1) Foster natural predators such as spiders, praying mantis, dragonflies, lacewings, soldier beetles, birds, bats, frogs, lizards, and certain snakes and toads.
- \_\_\_ ✓ (1) Use natural agents such as milky spore disease for grubs and Japanese beetles, *Bacillus thuringiensis* (BT) to control mosquito and small moth larvae, and sabadilla for chinch bugs.
- \_\_\_ ✓ (5) Exhaust all other options before using pesticides. Use organic alternatives to chemical pesticides. Also, rather than broadcasting pesticides, apply them directly to problem areas.
- \_\_\_ ✓ (5) Treat only serious or threatening intolerable pest infestations.
- \_\_\_ ✓ (5) Purchase the least toxic chemical in the smallest practical quantity
- \_\_\_ ✓ (5) Do not use pesticides outdoors just before a rainfall or on a windy day.
- \_\_\_ ✓ (1) Apply insecticides during the evening when honeybees and other beneficial insects are less active.
- \_\_\_ ✓ (5) Do not apply pesticides near water, e.g., shore, wells, streams, ponds, bird baths, swimming pools, etc.

For additional information and resources regarding the principles and practices of IPM, contact NJDEP's Bureau of Pesticide Compliance (See Appendix I).

(33) Total Points for BMP

Total N/A Points

## Best Management Practices for Creating Habitat Areas

### Maintain and/or Develop Vegetated Areas.

Vegetation filters and slows the flow of surface water runoff, stabilizes shorelines, and provides wildlife habitat, flood protection, and visual diversity.

- \_\_\_ ✓ (5) Maintain or create vegetated buffers (grassy or wooded) between all impervious areas (e.g., parking lots and boat storage areas) and the water.
- \_\_\_ ✓ (5) Plant vegetated areas with "beneficial" plants; those plants that require minimal care in terms of trimming, watering, and applications of fertilizer and pesticides. Native, or indigenous, plants require little care because they are adapted to the local climate and soil types. Also, many horticultural varieties and imported plants may be considered beneficial if they have few maintenance requirements and if they do not displace naturally occurring vegetation (that is, if they are not invasive). Refer to Appendix IV.
- \_\_\_ ✓ (1) Select perennial plants instead of annuals. Perennial plants need to be planted only once, tend to shade out most weeds, and few require supplemental water or maintenance.

- \_\_\_ ✓ (1) Choose plants that bear flowers, fruit, nuts, and seeds to attract birds, small mammals, and other wildlife.
- \_\_\_ ✓ (5) Do not plant and remove existing non-native invasive plants. (Visit the NJDEP website for a list of non-native invasive plants that should be avoided in New Jersey)
- \_\_\_ ✓ (1) Maintain proper soil pH and fertility levels. Fertility describes the presence of nutrients and minerals in the soil. Acidity and alkalinity levels are indicated by pH. These two measures together tell you which plants your soil can support. Soil pH may be adjusted by adding lime (base) or gypsum (acid). Add organic matter such as compost, leaf mold, manure, grass clippings, bark, or peat moss to improve fertility.
- \_\_\_ ✓ (1) Submit a soil sample to the Rutgers Cooperative Extension Service annually to determine fertility, pH, and application rates for soil amendments. For additional information visit the Rutgers website at [www.rce.rutgers.edu/ag](http://www.rce.rutgers.edu/ag) or call 732-431-7260 for Monmouth County or 732-349-1246 for Ocean County offices.
- \_\_\_ ✓ (1) Foster beneficial organisms. For example, earthworms move through the soil feeding on microorganisms. In the process, they aerate the soil, improving the flow of water and air to plant roots.
- \_\_\_ ✓ (5) Compost leaves, branches, grass trimmings, and other organic matter. Use the mature compost to nourish your soil. Alternatively, chip branches and leaves and use as mulch to discourage weeds and to conserve moisture. More complete information on composting is available from the Rutgers Cooperative Extension Service. Visit their website at [www.rce.rutgers.edu](http://www.rce.rutgers.edu) or call 732-431-7260.

**(25) Total Points for BMP**

**Total N/A Points**

**Participate in Oyster Restoration Programs.**

Oyster reefs provide food and habitat for hundreds of animals. The oysters themselves improve water quality by filter-feeding on microscopic algae. A single 3-inch oyster can filter up to 50 gallons of water a day. Benefits accrue to marinas as well. Marina owners noticed that tenants became more cautious about waste disposal once they began participating in oyster restoration programs.

- \_\_\_ ✓ (5) Become an oyster “gardener.” Work with the NY/NJ Baykeeper to build and install a float system for growing oysters. You will tend to seed oysters for 12 to 14 months, after which time the oysters will be transplanted to non-harvested oyster bars. **Do not eat oysters grown in marinas!** They will likely contain heavy metals from bottom paints and possibly bacteria from sewage discharges.

**(5) Total Points for BMP**

**Total N/A Points**

**Chapter Total:**  
 \_\_\_\_\_ **(224)**

**Chapter Total N/A Points:**  
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