



PIERS, DOCKS, AND FLOATS

BENCHMARK

Minimize the discharge of pollutants from materials used for dock, pier, or float construction and maintenance.



DOCKS AND PIERS AND FACILITY PLANNING

When maintaining, planning an expansion, or building new boatyard and marina structures, include water quality impacts in your decision making. Water quality and wildlife habitat can be affected by the “hardscape” at your facility when you:

- Increasing or decreasing stormwater runoff.
- Change water and sediment movement.
- Change shoreline structure and wave movement.
- Cover or shade the bottom.
- Add pollutants through the type of products used.
- Increase or decrease the amount of dredging.



Well maintained dock
Photo Credit: Bunnell Marine Consulting

To minimize the impact of changing or adding structures to your waterfront, implement the following practices.

- Minimize impervious areas. Doing so will reduce stormwater runoff.
- Avoid building structures that will impact water and sediment movement. Seawalls, causeways and filled piers have significant impacts on water movement and quality and sediment movement. It is in your best interest to have water moving through your facility constantly.



- Use upland and inland areas for parking and storage, protecting shorefront and making space available for buffer strips, swales, and other stormwater mitigation.
- Expand upward instead of adding slips, where allowable. Consider dry-stack storage, reducing the need for antifouling paint, and the risk for fuel spills on the water.
- Landscape your shorefront. Buffer strips and vegetated shoreline stabilization are beautiful and functional and can dramatically reduce pollutants running off the facility. Choose a variety of pest-resistant plants suited to the location, native to the area and provide fertilizer carefully at the roots at planting time to minimize fertilizer runoff.

Building, or expanding structures on the shoreline may trigger a number of permitting requirements including local permits for shoreland zoning, building and plumbing, Natural Resources Protection Act (NRPA) permits, submerged lands leases, and stormwater permits. Contact the regulating officials in the planning stage of your project to work with the regulations instead of around them.

PIERS, DOCKS, AND FLOAT BMPS

Choosing construction materials carefully can reduce maintenance and reduce the toxic pollutants from being introduced into the environment and result in a very durable structure. Treated woods like CCA (chromated copper arsenate, ACZA (ammoniacal copper zinc arsenate, or ammoniacal copper arsenate (ACA) can leach metals into the water, even when properly “aged” on land and are being phased out except in commercial and industrial situations. Preservative treated woods are effective in submerged situations, but may be unnecessary for decking, railings and other topside structures. Naturally rot resistant woods like cedar, white oak, and black locust are good choices for topside use, but still require regular maintenance. New, less toxic stains and weather treatment can enhance the durability and rot resistance of otherwise untreated wood. In addition, new pressure treating compounds like ACQ (ammonium copper quat) provide promise as durable and perhaps less toxic alternatives. New decking material made from recycled wood products and plastic is available that is durable and almost maintenance free. However, many of the recycled products do not have the same structural strength as wood and may require closer framing and other design considerations. Do your own research, publications like “Marina Dock Age” have huge amounts of material that can inform your decisions.

Submerged structures

Creosote treated pilings are no longer permitted for new installations in Maine, but existing pilings can often be pulled out, turned over and re-driven into the sediment conserving a resource with little additional pollutant load.



- Piling coatings including polyethylene (Perma Pile® or Forma Pile®, or Pilewrap®, for example) or composites can protect existing or new pilings from damage but do not provide additional strength.
- Alternative piling materials such as recycled plastic (Plastic Pilings®, Seapile®, Seatimber®) are often reinforced with fiberglass and are treated with ultraviolet inhibitors to increase durability are non-toxic in the marine environment and impervious to borers. In limited Maine testing, some alternative pilings did not appear to have the desired durability.
- Some tropical hardwoods (Ipe, Greenheart, Ironwoods®) are naturally resistant to borers and are very durable. Verify that the source of the wood is from sustainably forested timberlands and not from the native rainforest.
- Other alternative piling materials like concrete (Lancaster CP-40®) are also strong and very durable but may involve different connection configurations.
- If using CCA treated wood for submerged situations, ensure that it is southern yellow pine or douglas fir and that it meets the 2.5 CCA.
- Alternatives to pressure treated lumber for other submerged uses are being developed.

Topside Structures

There are many alternatives to CCA treated wood in topside applications. Pressure treated wood should be avoided except in ground-contact or high moisture applications (see submerged alternatives above). For siding, decking or handrails:

- Use recycled lumber alternatives (for example Trex®, Correctdeck®, TimberTech®, EWOOD®, Nexwood®). They are very low maintenance and durable but lack some of the structural strength of wood and normally require additional structural support. Recycled lumber may not be appropriate for drive-over or heavy load applications like commercial piers with regular vehicle traffic.
- Use untreated woods such as cedar and locust. Unfortunately, wood will need to be cleaned which is time consuming and many people resort to painting or staining it (refer to Painting section for guidance). New less toxic or non-toxic stains can maintain the woods good looks and increase rot resistance.
- Virgin PVC decking can be used, but by-products of its production are very toxic.



Pier work
Photo Credit: Bunnell Marine Consulting



- Aluminum is light and durable, but can be noisy.
- If you choose to use pressure treated lumber for topside use, ensure that it is southern yellow pine or douglas fir and that it does not exceed 1.0 CCA.

Floatation

There are several choices in dock floatation available, expanded polystyrene, polyurethane, polyethylene encapsulated, and fiberglass encapsulated. Unprotected floatation will foul eventually or degrade due to oil, sun, and abrasion. Degraded floatation can break apart and create a trash problem along with making your dock less stable. When evaluating floatation consider:

- Product life span
- Product durability
- Fouling potential
- Ease of replacement
- Eventual disposal

Disposal of Old Structures

Eventually old docks and wharves have to be repaired or replaced. Recycle any useable lumber, hardware and floatation. Pressure treated lumber must be disposed of properly and not burned.

LEGAL REQUIREMENTS

The following summaries of Federal and State laws and regulations are for general reference only and do not represent the laws fully. For a complete review of the pertinent laws and regulations use the references below to find either the complete text of the law or regulation or a detailed and complete summary in Section 2.

GENERALLY

Natural Resource Protection Act (NRPA) 38 M.R.S.A. §480-C

The Natural Resources Protection Act (NRPA) regulates activities in, on, over, or adjacent to protected natural resources: coastal wetlands; sand dunes; freshwater wetlands; great ponds; rivers, streams and brooks; fragile mountain areas; and significant wildlife habitat that may cause material or soil to be washed into those resources.



Generally, a permit is required if work disturbs soil within 75 feet of a protected natural resource. If you are unsure about whether or not an NRPA permit is required for your project, contact the appropriate DEP office and arrange for a staff visit.

Activities that may be regulated include:

- dredging, bulldozing, removing, or displacing soil, sand, vegetation, or other materials;
- draining or otherwise dewatering;
- filling; and
- constructing, repairing or altering any permanent structure (permanent structure is one placed or constructed in a fixed location for a period exceeding 7 months of the year).

For additional information: Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111, Portland – 312 Canco Road, Portland, ME 04103 (207) 822-6300, Bangor – 106 Hogan Road, Bangor, ME 04401 (207) 491-4570.

Mandatory Shoreland Zoning Act - 38 M.R.S.A. §435-449, C.M.R. Chapter 1000 and Local Ordinances

The Mandatory Shoreland Zoning Act requires all municipalities to establish zoning ordinances for land within 250 feet of great ponds, rivers, tidal areas, and freshwater and coastal wetlands. Within the shoreland zone, permits are required from the municipality (usually the planning board) for any new marina or expansion (including new structures).

Marinas are considered to be water-dependent uses and, therefore, in most cases are not subject to the same setback standards as those for non water-dependent uses. Most local ordinances have no minimum water setback standard for marina structures. However, boat storage is not considered a water dependent use.

Most shoreland zoning ordinances also regulate structures and activities which extend into and over the water. This would include boat ramps, piers, docks, and floats. Again, most ordinances have limited construction standards for piers, docks and floats.

For additional information: Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111. Or your local Code Enforcement Officer



Stormwater Management Law - 38 M.R.S.A § Section 481- 490 and 420D

Stormwater runoff should not cause erosion of surficial soils. Exposed soil should be stabilized immediately with vegetation. Runoff discharged into a receiving ditch should not erode the vicinity of the outlet, and finally, discharged runoff should not cause bank erosion or sedimentation of the receiving water body.

Stormwater should be handled within the area of the facility in order to conduct surface runoff away from critical site features and to a suitable outlet. This is generally accomplished by site grading, vegetation and/or routing the water flow into a properly designed stormwater system.

Under the State of Maine Site Location of Development Law, most boatyards and marinas are not regulated because of their small size; but a new state stormwater law (38 M.R.S.A. § 420D) went into effect in July, 1997. A new or expanded boating facility will now require a permit from the Department of Environmental Protection prior to construction . Note: Revisions to the Stormwater Law and Rules will be proposed by the MEDEP in 2005. Contact MEDEP for updates.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111.

NPDES Stormwater Laws – 40 CFR 122.26

In 1987, the United States Congress enacted a two phase stormwater permit program under section 402(p) of the Clean Water Act. Under phase I of the program – the National Pollutant Discharge Elimination System (NPDES) – permits are required for stormwater discharges associated with certain industrial activities performed at marinas and boatyards. In 2005, the Maine Department of Environmental Protection Agency will be implementing this program.

A marina primarily in the business of renting boat slips, storing, cleaning, and repairing boats, and which generally performs a range of other marine services is classified under the Standard Industrial Classification (SIC) system as a SIC 4493. A SIC 4493 marina is required to obtain an NPDES stormwater discharge permit if boat maintenance activities are conducted on the premises. The stormwater permit will apply only to the point source discharge of stormwater from the maintenance areas at the marina.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111, Portland – 312 Canco Road, Portland, ME 04103 (207) 822-6300, Bangor – 106 Hogan Road, Bangor, ME 04401 (207) 491-4570.

Discharge of Pollutants to Water - 38 M.R.S.A § Section 413



Section 413 prohibits discharging (spilling, leaking, dumping) of pollutants into state waters without a license from the Department of Environmental Protection. See page 3-33 or the Brightwork CD for more detailed regulatory information.

For additional information: Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111.

Submerged Lands Law – 12 M.R.S. A. § Section 1861-1867

Lands located below the mean low water line of tidal waters, the natural low water line of great ponds, and the international boundary rivers are owned by the State and reserved in a public trust. Construction of private or commercial piers, floats, marinas, and other structures on or over these public submerged lands often requires a lease or easement from the Department of Conservation, Bureau of Parks and Lands.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Parks and Lands, Department of Conservation, 22 State House Station, Augusta, ME 04333, phone # (207) 287-3821.

Pollution and corruption of waters and lands of the State prohibited – 38
M.R.S.A §543

Section 543 prohibits the discharge of oil into or near the waters for the state. If a spill happens that causes a sheen on the waterbody, you have violated this section of the law. Call the Oil Spill report line at 800-482-0777.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651