ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
CREATING RULES

The Wisconsin Natural Resources Board proposes an order to create NR 328, subch. I relating to shore erosion control of inland lakes and impoundments.

FH-39-02

Summary Prepared by the Department of Natural Resources

Statutory Authority: ss. 30.12(1), 30.12(1p), 30.2035, 30.206, and 227.11(2), Stats

Statutes Interpreted: ss. 30.12(1), 30.12(1g) (i), (j) and (k), (3) and (3m), and 30.206, Stats.

Explanation of Agency Authority:
The Department has authority under s. 30.12, Stats., to promulgate rules that establish installation practices, construction and design requirements and limitations on the location of structures placed under statutory exemptions. The Department has authority under ss. 30.12 and 30.206, Stats., to promulgate rules to establish general permits.

Related statute or rule:
These rules relate directly to regulation of activities in navigable waters under ch. 30, Stats., waters designations in ch. NR 1, and the NR 300 series of rules.

Plain Language Analysis:
The purpose of this rule is to establish construction, design and placement standards for projects to be eligible for statutory exemptions, to establish general permits with appropriate conditions, and to establish standards for projects that may be authorized under an individual permit.

Standards for exemptions, general permits and individual permits in this section are based on state-of-the-art science for determining wave energy condition at a site that corresponds to the presence of habitat features (and coincidentally the potential for shore erosion at the site). Research shows that fish and wildlife habitat is maximized along natural shorelines and minimized where hard armoring (e.g., seawalls, riprap) is installed. Riprap repair and replacement are generally allowed at moderate and high energy sites with several installation practices. Biological shore erosion control structures are generally allowed with several installation practices.

This order also establishes general permits for biological erosion control, riprap or vegetative armoring, and seawall replacement. Biological erosion control is allowed in ASNRIs under general permit if all standards for exemptions for this activity are met. Up to 100' of new riprap or vegetative armoring is allowed along moderate or high shorelines under general permit if all standards for exemptions for riprap repair and replacement are met. Seawall replacement is allowed under general permit at municipal and commercial marinas, navigation channels, and locations with slopes greater than 1.5:1.

This order also establishes some limitations on individual permits.

Federal Regulatory Analysis: Any activity that results in a discharge (including deposits and structures) into "waters of the United States" is regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. An Individual Permit from the Corps is required, unless Wisconsin regulates the project in its entirety under chapter 30, Stats., in which case the project is authorized by the Corps under general permits GP-01-WI or GP-LOP-WI. Dredging or discharge into waters declared navigable under Section 10, Rivers and Harbors Act, 1899 is also regulated, and requires an Individual Permit from the Corps.

Comparison with Adjacent States:

Minnesota
The Minnesota Department of Natural Resources, Division of Waters is responsible for Administrative Rules 6115.0215 (Restoration of Public Waters) and 6115.0210 (Structures in Public Waters). Minnesota's regulations include exempted activities and general permits and the regulated activity are roughly similar to Wisconsin. Minnesota's stated resource protection goals are more protective than Wisconsin, however their Administrative Rule criteria are more subjective.

Michigan
Inland lakes and streams are regulated under Part 301 and of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended. Under Part 301 the construction of any type of shore stabilization structure such as a sea wall, bulkhead, revetment, etc. at or below the ordinary high water mark of the lake or stream requires a permit. Michigan's stated goals and procedures (except MI has no erosion control structures exempt from permits) are similar to Wisconsin, however their specific decision criteria are more subjective.

Illinois
Illinois has no firm detailed guidelines related to specific permitting of erosion control structures. The U.S. Army Corps of Engineers often plays the lead role in permit issuance of erosion control structures in Illinois. The Army Corps consults with Illinois DNR, Illinois EPA and the U.S. Fish and Wildlife Service when reviewing projects. Project reviews typically focus on water quality and endangered resources. Illinois' regulated erosion control activities are less protective of the environment than in Wisconsin, and their decision criteria more subjective.

Iowa
Pursuant to Chapter 461A, erosion control structures placed below the ordinary high water mark require a permit for rivers, streams and lakes under the jurisdiction of the DNR (Sovereign Lands Construction Permit). Iowa Administrative Code only identifies authority, and the Department offers limited guidance and historical precedence for conducting project reviews. Environmental reviews consist of a record of review for protected species (state listed endangered or threatened), rare natural communities, state lands and waters in the project area, including review by personnel representing state parks, preserves, recreation areas, wetlands, fisheries and wildlife. Iowa's regulated erosion control activities are less protective of the environment than in Wisconsin and their decision criteria more subjective.

Summary of Factual Data and Analytical Methodologies: Standards are based on state-of-the-art science for determining wave energy condition at a site that corresponds to the presence of habitat features, and the potential for shore erosion at the site.

Analysis and Documents Supporting Determination of Small Business Effect: Any person placing a structure or making similar physical modifications to public navigable waters either qualifies for an exemption or must obtain a general or individual permit under state statute. To comply, small businesses follow the same requirements as other waterfront property owners: (1) make a self-determination of exemption using web-based tools provided by the department or describe their activity on an exemption determination request form; (2) complete a general permit application; or (3) complete an individual permit application. Schedules, application steps and compliance/reporting requirements are very basic for all applicants, and most projects can be planned and conducted by individuals with no specific professional background.

Anticipated Private Sector Costs: No significant fiscal effect on the private sector is anticipated.

Effect on Small Business: Small businesses who wish to conduct regulated activities on or near navigable waterways will be affected by the rule. Specific standards will provide clarity and consistency in the permitting process.

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SECTION 1. Chapter NR 328 (title) is repealed and recreated to read:

CHAPTER NR 328
SHORE EROSION CONTROL STRUCTURES IN NAVIGABLE WATERWAYS

SECTION 2. Chapter NR 328, subch. I is created to read:

SUBCHAPTER I
SHORE EROSION CONTROL STRUCTURES ON INLAND LAKES AND IMPOUNDMENTS

NR 328.01 Purpose. (1) The purpose of this subchapter is to establish reasonable procedures and limitations for exempt activities, general permits and individual permits for placement of shore erosion control structures in inland lakes and impoundments as regulated under s. 30.12, Stats., in order to protect the public rights and interest in the navigable, public waters of the state as defined in s. 30.10, Stats.

(2) The standards for exemptions, general permits and individual permits in this chapter balance the reasonable right of riparians to control shore erosion under Wisconsin law with the public rights and interests in navigable waters. (Doemel v. Jantz, 180 Wis. 225, 193 N.W., 393 (1923)). The public interest in navigable waters includes navigation, recreation, fish and wildlife habitat, water quality and natural scenic beauty.

(3) Natural shoreline features provide natural erosion control in various ways. Nearshore lakebeds and beach slopes change and shoals forms erosion uncovers or sorts out sand, gravel, cobbles, boulders and bedrock from beneath glacial till and other fine soils. These more energy resistant materials are formed into wave-breaking, energy-absorbing barriers that eliminate, or slow, further erosion. Natural vegetation provides erosion control in several ways. Plants form a network of roots that hold soil particles together and stabilize the bank. Exposed stalks, stems, branches, foliage and fallen trees dampen waves, reduce local flow velocities, and dissipate energy against the plant rather than eroding the soil. Vegetation also acts as a buffer to trap suspended sediment and induce its deposition.

(4) Shoreline erosion control structures allowed under this rule are setting-dependent and based on erosive energy at a site. Erosive energy is a reflection of habitat features at a site. Low-energy settings are found to contain fine-size nearshore sediments, stable natural vegetation, and absent or natural levels of erosion. In low-energy and some moderate energy sites vegetation can effectively meet erosion control needs without infringement on the public interest. Shore protection from vegetation alone may be inadequate in some low- to moderate-energy settings and many high-energy settings; therefore, methods that rely on technical structures or a combination of vegetation with technical structures ,i.e., large substrates, may be necessary. Riprap, vegetated riprap and integrated toe protection are preferred structural shore protection methods in high-energy settings with erosion problems.

(5) Standards for exemptions are intended to provide clear and consistent requirements so that individuals can determine whether they qualify, and easily design projects to meet the requirements. To achieve this, exemption standards establish reasonable installation practices to minimize environmental impacts, establish reasonable construction and design requirements consistent with the purpose of the activity, and establish reasonable limitations on location.

(6) Standards for general permits are intended to ensure that cumulative adverse environmental impact of authorized activities is insignificant and that issuance of the general permit will not injure public rights or interests, cause environmental pollution as defined in s. 299.01(4), Stats., or result in material injury to the rights of any riparian owner. To achieve this, general permit standards establish: construction and design requirements consistent with the purpose of the activity; location requirements that ensure that the activity will not have an adverse impact on fish and wildlife habitat, water quality and natural scenic beauty, or materially interfere with navigation or have an adverse impact on the riparian property rights of adjacent riparian owners.

(7) Standards and factors for individual permits are intended to provide direction for detailed evaluation of permit applications, and to balance case-by-case review with consistent decision-making. Individual permits may only be granted where the department determines that the structure will not materially obstruct navigation, will not be detrimental to the public interest, and will not materially reduce the flood flow capacity of a stream.

NR 328.02 Applicability. (1) Except as provided in s. 30.2023, Stats., this subchapter applies to construction, placement and maintenance of shore erosion control structures regulated under ss. 30.12(1), (1g)(a), (i), (j) and (k), (2m), (3)(a)3c., 3g., 3r. and 13. and (3m), Stats. Any person that intends to construct, place or maintain a shore erosion control structure in any inland lake or impoundment shall comply with all applicable provisions of this chapter and any permit issued under this chapter.

Note: This subchapter does not apply to the Great Lakes or outlying waters as defined in s. 29.001(63), Stats.

Note: Shore erosion control structures for lakes and impoundments in the areas described in s. 30.203, Stats., (Seawalls; Wolf River and Fox River basins) that do not qualify for an exemption are regulated under this chapter.

(2) Shore erosion control measures such as grading to establish a stable slope, revegetation or other bioengineering methods that do not involve the placement of structures on the bed of a waterway are not regulated under s. 30.12, Stats., or this subchapter.

Note: A permit is required under s. 30.19, Stats., and ch. NR 341 if land disturbance or excavation exceeds 10,000 square feet on the bank of the navigable waterway.

NR 328.03 Definitions. In this subchapter:

(1) "Area of special natural resource interest" has the meaning in s. 30.01(1am), Stats., and as identified by the department in s. NR 1.05.

Note: "Area of special natural resource interest" means any of the following:
(a) A state natural area designated or dedicated under ss. 23.27 to 23.29, Stats.
(b) A surface water identified as a trout stream by the department under s. NR 1.02(7).
(bm) A surface water identified as an outstanding or exceptional resource water under s. 281.15, Stats.
(c) An area that possesses significant scientific value, as identified by the department in s. NR 1.05.

Information and lists can be obtained by contacting the department, or found on the department's website at www.dnr.wi.gov, under the topic "Waterway and Wetland Permits".

(2) "Biological shore erosion control structure" means a structure that relies solely on biological materials.

(3) "Biological materials" means living or organic materials that are biodegradable such as native grasses, sedges, forbs, shrubs and trees; live stakes and posts; non-treated wood; jute netting; fiber rolls and mats; logs; and branches.

Note: Temporary breakwaters, with non-biodegradable elements, are considered a permissible element during the plant establishment phase of a biological erosion control project.

(4) "Commercial marina" has the meaning in ch. NR 326.

(5) "Department" means the department of natural resources.

(6) "Erosion intensity" or "EI" means the degree of erosion as estimated under s. NR 328.08(2).

(7) "Grading" means the physical disturbance of the bank by the addition, removal or redistribution of soil.

(8) "Hard armoring" means a shore erosion control structure that relies solely on inert materials, and includes but is not limited to riprap and seawalls.

(9) "High energy site" means a site where the storm-wave height calculated under s. NR 328.08(1) is greater than or equal to 2.3 feet, where the erosion intensity score calculated under s. NR 328.08(2) has a score of greater than 67.

(10) "Inert materials" means those materials that slowly degrade, such as chemically treated wood, stone, stainless and galvanized steel, plastics and synthetic polymers.

(11) "Integrated toe protection" means a structure combining 2 separate treatments: toe protection at the base of the bank and vegetation establishment on the remaining upper portion of the bank above the ordinary high water mark.

Note: The maximum toe protection structure elevation is equal to the ordinary high water mark plus one-half of the storm-wave height.

Note: The toe protection relies on materials such as stone, armor units, fiber rolls or wattles to protect the base of the bank. Above the toe protection, the remainder of the bank is revegetated by installing a shoreland buffer or with brush layering, brush mattresses, fiber rolls, live stakes, vegetated geogrid, rolled erosion control products or wattles. Plant materials may also be incorporated as part of the shore protection design below the ordinary high water mark as well.

(12) "Low energy site" means a site where the storm-wave height calculated under s. NR 328.08(1) is less than 1.0 foot, or where the erosion intensity score calculated under s. NR 328.08(2) has a score of 47 or less.

(13) "Municipal marina" has the meaning in ch. NR 326.

(14) "Maximum toe elevation" means the elevation of the bank toe mark plus the storm-wave height estimated under s. NR 328.08(1).

(15) "Moderate energy site" means a site where the storm-wave height calculated under s. NR 328.08(1) is greater than or equal to 1.0 foot but less than 2.3 feet, where the erosion intensity score calculated under s. NR 328.08(2) has a score of 48 to 67.

Note: Common law doctrine of avulsion secures to waterfront property owner the ability to reclaim land suddenly lost to erosion *(AG ex rel Becker v. Bay Boom Wild River and Fur Company, 172 Wis. 363 1920.)*

(16) "Offshore" means located a minimum of 10 horizontal feet waterward from the ordinary high water mark.

(17) "Ordinary high water mark" means the point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognizable characteristic.

(18) "Navigable waterway" means any body of water with a defined bed and bank, which is navigable under the laws of the state. In Wisconsin, a navigable body of water is capable of floating the lightest boat or skiff used for recreation or any other purpose on a regularly recurring basis.

Note: This incorporates the definition at s. 30.01(4m), Stats., and current case law, which requires a watercourse to have a bed and banks, *Hoyt v. City of Hudson*, 27 Wis. 656 (1871), and requires a navigable waterway to float on a regularly recurring basis the lightest boat or skiff, *DeGayner & Co., Inc. v. DNR*, 70 Wis. 2d 936 (1975); *Village of Menomonee Falls v. DNR*, 140 Wis. 2d 579 (Ct. App. 1987).

(19) "Permanent breakwater" means a structure constructed of stone, rock, concrete or other non-degradable materials and located offshore for the purpose of diminishing the force of the waves and protecting the shoreline.

Note: These structures can be designed to provide fish and wildlife habitat in addition to erosion control by incorporating vegetation on the breakwater and in the nearshore zone. Examples of permanent breakwaters include stone dikes, barrier islands, stone islands and submerged offshore shoals.

(20) "Replacement" means a degree of structural changes to the shore erosion control structure by which some or all of the structure is being removed and recreated.

Note: For seawalls, any replacement of a portion of the seawall down to or at the footing of the structure is considered replacement. For riprap, replacement of filter fabric or replacement of the base substrate is considered replacement.

(21) "Riparian" means an owner of land abutting a navigable waterway.

(22) "Riprap" means a layer or layers of rock, including filter material, placed on the bed and bank of a navigable waterway to prevent erosion, scour or sloughing of the existing bank.

(23) "Seawall" means an upright structure that is steeper than 1.5 feet vertical to one foot horizontal and that is installed parallel to the shore to prevent the sliding or slumping of the land and to protect the adjacent upland from wave action.

Note: Seawalls are commonly constructed of timber, rock (including gabions), concrete, steel or aluminum sheet piling, and may incorporate biological components.

(24) "Shore erosion control structure" means a structure with defined shape, size, form and utility constructed and maintained for the purpose of protecting a shoreline from erosion. Shore erosion control structures include vegetated armoring and hard armoring.

(25) "Storm-wave height" means the wave height estimated under s. NR 328.08(1).

(26) "Temporary breakwater" means an offshore structure consisting of biological components, such as jute, fiber rolls, willow stakes, branchbox breakwater or a structure consisting of inert components that will be removed after a set period of time.

Note: Temporary breakwaters are placed for the purpose of providing an area of quiescent water, when new erosion protection designs and shoreland plant installations are becoming established. Biological temporary breakwater designs degrade naturally and examples include branchbox breakwaters and fiber rolls.

(27) "Toe" means the most waterward edge of a shore erosion control structure.

(28) "Vegetated armoring" means a shore erosion control structure that combines biological and inert materials, and includes 3 types: integrated toe protection, vegetated-riprap and vegetated-geogrids.

(29) "Wave height" means the vertical distance between the wave crest and wave trough.

(30) "Wetland" means an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.

NR 328.04 Exemptions. (1) PROCEDURES. Exemptions shall be processed according to the procedures in ch. NR 310.

(2) APPLICABLE ACTIVITIES. A biological shore erosion control structure that meets all the

standards in subs. (3) and (4) shall be exempt under s. 30.12(1g)(k), Stats. Riprap repair that meets all the standards in subs. (3) and (5) shall be exempt under s. 30.12(1g)(j), Stats. Riprap replacement that meets all the standards in subs. (3) and (6) shall be exempt under s. 30.12(1g)(i), Stats.

Note: Eligibility for an exemption or general permit does not automatically result in a federal permit or state water quality certification for fill in wetlands. Some projects involving minimal wetland fill may be eligible for authorization under a U.S. Army Corps of Engineers general permit which has already been granted state water quality certification [see non-reporting and 404 GP activities in the table at http://www.mvp.usace.army.mil/docs/regulatory/WIMATRIX.htm] or a general permit under s. 281.36(8), Stats. (under development) All other projects affecting wetlands will require individual water quality certification including public notice as required by s. 401, Federal Clean Water Act, and s. 281.36(2), Stats. and carried out under NR103 and NR299, Wis. Adm. Code. For further instructions, see the department's website at www.dnr.wi.gov under the topic "Waterway and Wetland Permits."

(3) GENERAL STANDARDS. (a) The structure may not be located in an area of special natural resource interest.

(b) The structure may be placed and maintained only by a riparian.

(c) The project will not result in removal of greater than 20% of the aerial coverage of natural bank vegetation, emergent vegetation or floating vegetation, not including the area covered by the footprint of the riprap, or any access corridors necessary for the placement of the riprap.

(d) Any grading, excavation and land disturbance shall be confined to the minimum area necessary for the construction and may not exceed 10,000 square feet.

(e) Erosion control measures shall meet or exceed the technical standards for erosion control approved by the department under subch. V of ch. NR 151. Any area where topsoil is exposed during construction shall be immediately seeded and mulched or riprapped to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway.

Note: These standards can be found at the following website: http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm

(f) Unless part of a permanent stormwater management system, all temporary erosion and sediment control practices shall be removed upon final site stabilization. Areas disturbed during construction or installation shall be restored.

(g) All equipment used for the project shall be designed and properly sized to minimize the amount of sediment that can escape into the water.

(h) No waterward extension of the property is permitted other than what is reasonably necessary to conduct the project and protect the existing bank. No soil or similar fill material may be placed in a wetland or below the ordinary high water mark of any navigable waterway.

(i) Dredging under s. 30.20(1g)(b)1., Stats., is not allowed for the placement or maintenance of any shore erosion control structure under this section.

(4) BIOLOGICAL SHORE EROSION CONTROL. Biological shore erosion control structures, including but not limited to native vegetation, fiber rolls, fiber mats, live stakes, brush mattresses, branchbox breakwaters, temporary breakwaters, may be placed subject to the requirements and limitations of sub. (3) and this subsection:

(a) Any wave breaks or wave barriers shall be completely removed within 2 years of the installation date. If wave barriers are used, they shall be located within the 3-foot water depth contour or less, marked with reflectors, and may not create an obstruction to navigation.

(b) Willow wattles, willow posts, brush mattresses, brush layering, fiber roll breakwaters, plant carpets, root wads, and other natural materials shall be installed by hand.

(c) Vegetation shall be plant species which are native to the area of Wisconsin where the project is located.

(d) Fiber rolls shall be secured using can and duckbill anchors or hardwood stakes. Spacing between the duckbill anchors shall be 6 feet or less. Spacing between the hardwood stakes shall be 4 feet or less.

(e) A deposit of sand, gravel or stone under s. 30.12(1g)(a), Stats., may not be associated with the biological erosion control structure.

(5) RIPRAP REPAIR. Existing riprap may be repaired subject to the requirements and limitations of sub. (3) and this subsection:

(a) Riprap repair may not exceed 300 linear feet of shoreline located on an inland lake or flowage.

(b) Riprap repair may only involve placement of additional rock or redistribution of existing rock within the footprint of the existing riprap.

(c) Addition of rock may only occur no more than once every 5 years.

(d) A deposit of sand, gravel or stone under s. 30.12(1g)(a), Stats., other than the riprap itself, may be not associated with the riprap repair.

(e) Except as provided in pars. (a), (b), (c) and (d), the riprap repair shall meet the conditions of the original permit.

(f) Where riprap was not previously permitted, the riprap repair shall meet the following conditions in addition to the requirements of pars. (a) to (d):

1. Repair shall be outside of sensitive areas identified in ch. NR 107.

2. Repair shall be located along moderate or high energy shorelines, based on the calculation of storm wave height calculated in s. NR 328.08(1).

3. Riprap may not be placed at an elevation higher than the ordinary high water mark plus the storm-wave height as calculated in s. NR 328.08. For waters subject to subch. II, riprap may not be placed at an elevation higher than the ordinary high water mark plus 1.5 times the storm-wave height calculated in s. NR 328.08.

Note: The listed waters in subch. II are typified by following conditions – impounded; 2500 acres and larger; extensive water level fluctuation; high shoreline recession rates; historic loss of shoreline vegetation.

4. The toe of the riprap may not extend more than 6 feet waterward of the ordinary high water mark.

5. Riprap shall be clean fieldstone or quarry stone 6 to 24 inches in diameter.

(6) RIPRAP REPLACEMENT. Replacement of existing riprap is subject to the requirements and limitations of sub. (3) and this subsection:

(a) Riprap replacement may not exceed 100 linear feet of shoreline located on an inland lake or flowage.

(b) Riprap replacement may occur no more than once every 5 years.

(c) A deposit of sand, gravel or stone under s. 30.12(1g)(a), Stats., may be associated with the riprap replacement provided the deposit is limited to the area immediately underneath the riprap and is less than 2 cubic yards, not including the riprap itself or clean washed gravel provided under par. (e)6.

(d) Except as provided in pars. (a), (b) and (c), the riprap replacement shall meet the conditions of the original permit.

(e) Where the riprap was not previously permitted, the riprap replacement shall meet the following conditions in addition to the requirements of pars. (a) to (c):

1. Replacement shall be outside of sensitive areas identified in ch. NR 107.

2. Replacement shall be located along moderate or high energy shorelines, based on the calculation of storm wave height calculated in s. NR 328.08(1).

3. Riprap may not be placed at an elevation higher than the ordinary high water mark plus the storm-wave height as calculated in s. NR 328.08(1). For waters subject to subch. II, riprap may not be placed at an elevation higher than the ordinary high water mark plus 1.5 times the storm-wave height calculated in s. NR 328.08.

Note: The listed waters in subch. II are typified by following conditions – impounded; 2500 acres and larger; extensive water level fluctuation; high shoreline recession rates; historic loss of shoreline vegetation.

4. The toe of the riprap may not extend more than 6 feet waterward of the ordinary high water mark.

5. Riprap shall be clean fieldstone or quarry stone 6 to 24 inches in diameter.

6. The final riprap slope may not exceed (be steeper than) 2 feet horizontal to one foot vertical.

7. Filter cloth or clean-washed gravel shall be used as a filter layer under the riprap to extend the life of the structure, improve effectiveness and prevent soil erosion behind the riprap.

8. Riprap or other vegetated armoring along moderate energy sites shall be re-vegetated above the ordinary high water mark by using native plantings which may include native non-woody plants, native shrub plantings, native live stakes or native jointed plantings.

9.The applicant can document, using historical information and photos, the previous placement of riprap.

10. The applicant can demonstrate that the replacement structure is within the footprint of the previous structure.

(7) PERMIT REQUIRED. (a) Activities which do not meet the standards in sub. (3) and either sub. (4), (5) or (6) or are determined ineligible for an exemption by the department shall require a general permit or individual permit.

(b) The department has the authority under s. 30.12(1m), Stats., to require a permit in lieu of exemption.

NR 328.05 General permits. (1) PROCEDURES. (a) General permits shall be processed according to the procedures in ch. NR 310.

(b) If the department determines that a proposal submitted under this section has the potential to impact an endangered or threatened species in accordance with s. 29.604, Stats., the application shall be deemed incomplete. The department may not consider the application complete or issue a general permit until the applicant submits documentation to demonstrate one of the following:

1. The project avoids impacts to the endangered or threatened species in accordance with s. 29.604, Stats.

2. The project has received an incidental take authorization under s. 29.604, Stats.

(c) If the applicant modifies the project plans to meet the requirements of par. (b), the modified plans shall be submitted before the department may consider the application complete or issue a general permit.

(2) APPLICABLE ACTIVITIES. Biological shore erosion control that meets all the criteria in sub. (3) shall be eligible for general permit coverage under ss. 30.12(3)(br) and 30.206, Stats. Riprap that meets all the criteria in subs. (4), (5) or (6) shall be eligible for general permit coverage under ss. 30.12(3)(a)3g., (br)and 30.206, Stats. Seawall replacement that meets all the criteria in sub. (7) shall be eligible for general permit coverage under ss. 30.12(3)(a)13. and 30.206, Stats.

Note: Eligibility for an exemption or general permit does not automatically result in a federal permit or state water quality certification for fill in wetlands. Some projects involving minimal wetland fill may be eligible for authorization under a U.S. Army Corps of Engineers general permit which has already been granted state water quality certification [see non-reporting and 404 GP activities in the table at http://www.mvp.usace.army.mil/docs/regulatory/WIMATRIX.htm] or a general permit under s. 281.36(8), Stats. (under development) All other projects affecting wetlands will require individual water quality certification including public notice as required by s. 401, Federal Clean Water Act, and s. 281.36(2), Stats. and carried out under NR103 and NR299, Wis. Adm. Code. For further instructions, see the department's website at www.dnr.wi.gov under the topic "Waterway and Wetland Permits."

(3) BIOLOGICAL SHORE EROSION CONTROL. Biological shore erosion control structures may be authorized under this general permit if it meets all of the requirements of s. NR 328.04(3) and (4) with the exception that it may be located in an area of special natural resource interest.

(4) RIPRAP REPAIR OR REPLACEMENT. Repair of riprap or replacement of riprap on the bed or bank of a navigable water may be authorized under this general permit if it meets all of the requirements of s. NR 328.04(3) with the exception that it may be located in an area of special natural resource interest, and with additional limitations as follows:

(a) Riprap replacement may not exceed 100 linear feet of shoreline located on an inland lake or flowage.

(b) Riprap repair may not exceed 300 linear feet of shoreline located on an inland lake or flowage.

(c) Riprap repair/replacement may occur no more than once every 5 years.

(d) A deposit of sand, gravel or stone under s. 30.12(1g)(a), Stats., may be associated with the riprap replacement provided the deposit is limited to the area immediately underneath the riprap and is less than 2 cubic yards, not including the riprap itself or clean washed gravel provide under par. (L).

(e) The repair/replacement will not disturb sensitive areas identified in ch. NR 107.

(f) The applicant can document, using historical information and photos, the previous placement of riprap.

(g) The applicant can demonstrate that the replacement structure is within the footprint of the previous structures.

(h) Riprap may not be placed at an elevation higher than the ordinary high water mark plus the storm-wave height as calculated in s. NR 328.08(1).

(i) The toe of the riprap may not extend more than 8 feet waterward of the ordinary high water mark.

(j) For replacement the final riprap slope may not exceed (be steeper than) 2 feet horizontal to one foot vertical.

(k) Riprap shall be clean fieldstone or quarry stone 6 to 24 inches in diameter.

(L) For replacement projects the filter cloth or clean-washed gravel shall be used as a filter layer under the riprap to extend the life of the structure, improve effectiveness and prevent soil erosion behind the riprap.

(m) Riprap or other vegetated armoring shall be re-vegetated above the ordinary high water mark by using native plantings which may include native non-woody plants, native shrub plantings, native live stakes or native jointed plantings.

(5) RIPRAP OR VEGETATED ARMORING. Riprap or vegetated armoring on the bed or bank of a lake or flowage may be authorized under this general permit if it meets all of the requirements of s. NR 328.04(3) with the exception that it may be located in an area of special natural resource interest, and with additional limitations as follows:

(a) Riprap or vegetated armoring may not exceed 200 linear feet of shoreline.

(b) The project site is a moderate or high energy site.

(c) Riprap shall be clean fieldstone or quarry stone 6 to 24 inches in diameter.

(d) The toe of the riprap may not extend more than 8 feet waterward of the ordinary high water mark.

(e) The final riprap slope may not exceed (be steeper than) 2 feet horizontal to one foot vertical.

(f) Riprap may not be placed at an elevation higher than the ordinary high water mark plus the storm-wave height as calculated in s. NR 328.08(1). For waters subject to subch. II, riprap may not be placed at an elevation higher than the ordinary high water mark plus 1.5 times the storm-wave height calculated in s. NR 328.08.

Note: The listed waters in subch. II are typified by following conditions – impounded; 2500 acres and larger; extensive water level fluctuation; high shoreline recession rates; historic loss of shoreline vegetation.

(g) No fill material or soil may be placed in a wetland or below the ordinary high water mark of any navigable waterway.

(h) The riprap shall follow the natural contour of the shoreline.

(i) Filter cloth or clean-washed gravel shall be used as a filter layer under the riprap to extend the life of the structure, improve effectiveness and prevent soil erosion behind the riprap.

(j) Riprap or other vegetated armoring along moderate energy sites shall be re-vegetated above the ordinary high water mark by using native shrub plantings, native live stakes or native jointed plantings.

Note: Erosion control treatments may include a 10-foot shoreline segment where plant establishment is not required for the purpose of ingress/egress associated with the placement of a pier or access to the waterway, or associated with public park activities.

(6) REPLACEMENT OF AN EXISTING SEAWALL WITH RIPRAP OR VEGETATED ARMORING. Replacement of an existing seawall with riprap or vegetated armoring on the bed or bank of a lake or flowage may be authorized under this general permit if it meets all of the requirements of s. NR 328.04(3) and (5) (c) to (j), with the exception that it may be located in an area of special natural resource interest, and may not exceed 500 linear feet.

(7) SEAWALL REPLACEMENT. Replacement of an existing seawall on the bed or bank of a navigable water adjacent to a riparian property may be authorized under this general permit if it meets all of the requirements and limitations:

(a) The replacement may not exceed 100 feet of shoreline located on an inland lake or flowage of 300 acres or more.

(b) Seawall replacement may be permitted only at the following locations:

1. Municipal or commercial marinas where vertical docking facilities are a practical alternative after considering the public interest.

2. Navigational channels actively used as thoroughfares or for access, where slopes are greater (steeper) than 1.5 feet vertical to one foot horizontal, showing evidence of erosion, where alternative methods of erosion control would impede navigation.

3. Locations where slopes are greater (steeper) than 1.5 feet vertical to one foot horizontal, and where the applicant demonstrates that alternative measures are not practicable taking into consideration bank height and the location of other permanent structures on the property.

(c) The seawall replacement shall incorporate an adequate footing to prevent settlement, tipping or undermining.

(d) The seawall shall be attached, where appropriate, to tieback anchors place on the upland to prevent or minimize tipping of the wall.

(e) The seawall shall include weep holes where necessary to relieve hydrostatic pressure in upland soils. A filter fabric or gravel filter layer backing at weep holes shall be installed to facilitate drainage and prevent the loss of soil from behind the wall.

(f) For locations identified in par. (b)3., rock riprap shall be placed in front of the seawall to dissipate wave energy, minimize scour at the base of the wall and provide aquatic habitat. Rock shall be placed to the top of the wall. Riprap shall be clean fieldstone or quarry stone 6 to 24 inches in diameter, placed at a slope not to exceed (be steeper than) 2 feet horizontal to one foot vertical, and may not extend more than 8 feet waterward of the face of the seawall.

(g) Each end of the seawall shall be buried or keyed into the bank to prevent flanking.

(h) The seawall may be built only high enough to prevent the over-topping by storm waves.

(7) INDIVIDUAL PERMIT REQUIRED. (a) Activities which do not meet the applicable standards in sub. (3), (4), (5), (6) or (7) are otherwise ineligible for a general permit shall require an individual permit.

(b) The department has authority under s. 30.206(3r), Stats., to require an individual permit in lieu of a general permit.

NR 328.06 Individual permits. (1) PROCEDURES. (a) Individual permits shall be processed according to the procedures in ch. NR 310.

(b) If the department determines that a proposal submitted under this section has the potential to impact an endangered or threatened species in accordance with s. 29.604, Stats., the application shall be deemed incomplete. The department may not consider the application complete or issue a general permit until the applicant submits documentation to demonstrate one of the following:

1. The project avoids impacts to the endangered or threatened species in accordance with s. 29.604, Stats.

2. The project has received an incidental take authorization under s. 29.604, Stats.

(c) If the applicant modifies the project plans to meet the requirements of par. (b), the modified plans shall be submitted before the department may consider the application complete or issue a general permit.

(2) APPLICABLE ACTIVITIES. Any shore erosion control structure which is not exempt under s. NR 328.04, is not authorized by a general permit under s. NR 328.05, requires authorization by an individual permit pursuant to s. 30.12(1), Stats.

(3) RIPRAP. (a) *Moderate or high energy site.* Construction of new riprap at moderate or high energy sites which do not meet the general permit standards in s. NR 328.05 may be authorized by an individual permit provided that the construction meets the standards in s. 30.12(3m), Stats., and the rules promulgated thereunder.

(b) *Low energy site*. Construction of new riprap at low energy sites may be authorized by an individual permit provided one of the following can be shown:

1. The bank-edge recession described in s. NR 328.08(3) is equal to or greater than 0.5 feet per year, and the construction meets the standards in s. 30.12(3m), Stats., and sub. (5).

2. The EI score described in s. NR 328.08(2) is equal to or greater than 40, and the construction meets the standards in s. 30.12(3m) Stats., and sub. (5).

(4) SEAWALLS. Seawalls meeting the standards in s. 30.12(3m), Stats., may be authorized under an individual permit, except that seawalls at low energy sites may only be permitted in the following locations:

(a) Municipal or commercial marinas where vertical docking facilities are a practical alternative after considering the public interest.

(b) Navigational channels actively used as thoroughfares or for access, where slopes are greater (steeper) than 1.5 feet vertical to one foot horizontal, showing evidence of erosion, where alternative methods of erosion control would impede navigation.

(c) Locations where slopes are greater (steeper) than 1.5 feet vertical to one foot horizontal, and where the applicant demonstrates that alternative measures are not practicable taking into consideration bank height and the location of other permanent structures on the property.

(5) ANALYSIS OF INDIVIDUAL PERMITS. The department shall consider factual data from applicant regarding all of the following factors in evaluating individual permit applications:

Note: The Department's analysis of individual permits is not constrained to the general permit standards identified in s. NR 328.05.

(a) Whether shore protection measures allowed without permits or with a general permit would provide adequate erosion control.

(b) The cumulative and individual impact on public rights and interests including fish and wildlife habitat, physical, chemical and biological effects on the adjacent waterway and natural scenic beauty including: interference with navigation and its incidents, i.e, swimming, boating, fishing and hunting; impacts on natural scenic beauty; and impacts on special concern, threatened or endangered species.

Note: Less developed areas of the lake or less developed lakes in general will experience greater impacts on natural scenic beauty from the structure and its activity than other more developed areas or lakes.

Note: Survey information indicates that special concern, threatened, or endangered species or their habitats are found near the site.

(c) Impacts on littoral zone and nearshore habitat including: reduced density of woody cover in shallow water; reduced density, coverage and diversity of nearshore vegetation, such as terrestrial, emergent, floating-leafed and submerged zones; designated sensitive areas, spawning or nursery habitat.; change in nearshore substrate that reduces its suitability for habitat.

Note: The structure and its associated activity located in or near spawning/nursery habitats or designated sensitive areas.

(d) The erosion exposure of the project site based on site-specific conditions, including ice and the presence of natural ice ridges.

(e) The effect of the project on the adjoining upland and its ability to prevent erosion and sedimentation into the waterway.

(f) Whether project designs or specific conditions can avoid or reduce impacts of the structure. Designs shall have high likelihood of success, and duration equal to the life-span of the structure.

(6) EXISTING PERMITS. A shore protection structure which is authorized by an existing department permit shall continue to be authorized, provided the structure is maintained in compliance with all the conditions of the original permit. Any modifications to the structure that do not comply with the original permit conditions shall require a new individual permit and shall comply with all standards in this section.

NR 328.07 Prohibited erosion control methods. (1) PERMANENT BREAKWATERS. Except as provided in subch. II, construction of permanent breakwaters is prohibited.

(2) NEW SEAWALLS. Except as provided in s. NR 328.06(4) or s. 30.203, Stats., construction of new seawalls is prohibited.

(3) NEW RIPRAP. Construction of new riprap is prohibited at low energy sites, except as provided in s. NR 328.06(3)(b).

Note: Construction of new riprap may be authorized at moderate and high energy sites as provided in s. NR 328.05(5) or NR 328.06(3).

NR 328.08 Data requirements and site assessment methods. Applicants and department staff shall adhere to the following data requirements and site assessment methods:

(1) CALCULATION OF STORM-WAVE HEIGHT. The department shall provide applicants with worksheets and internet-based computer software for the purpose of estimating storm wave height. Computer software shall be mathematically designed based on Young and Verhagen (1996) and Young (1998). Storm-wave heights shall be estimated according to Young and Verhagen (1996) and Young (1997) by applying a storm wind speed of 35 miles per hour (51.45 ft/sec), fetch at the applicant's shore protection site, and the average depth along that fetch. To record fetch, applicants shall measure the longest unobstructed straight-line distance originating from the shore protection site across the water surface to the opposite intersect with the shore. To estimate average depth applicants shall examine a lake map, sum the reported depths along the fetch, and divide by the number of recorded values. At least 5 equally placed intervals along the fetch shall be used.

Note: The citation for Young (1997) is as follows: Young, I.R. 1997. The growth rate of finite depth wind-generated waves. Coastal Engineering, Vol. 32, pp. 181-195. The citation for Young and Verhagen (1996) is as follows: Young, I.R. and L.A. Verhagen. 1996. The growth of fetch limited waves in finite water depth. Coastal Engineering, Vol. 29, pp. 47-78.

Note: Statewide storm wind speeds are estimated from Naber Knox, P. 1996. Wind Atlas of Wisconsin. Wisconsin Geological and Natural History Survey, Bulletin No. 94.

(2) CALCULATION OF EROSION INTENSITY. Where an applicant or the department believes that, as a result of site conditions, storm-wave height as calculated in sub. (1) may inaccurately predict the degree of erosion, the erosion intensity score may be calculated to determine erosion. The department shall provide applicants with worksheets and internet-based computer software for the purpose of calculating erosion intensity. When the department or applicants assess erosion at the shore protection site they shall apply methods outlined in Table 1 to calculate an erosion intensity score. Wherever EI and storm-wave height result in different energy categories, the site shall be placed in the category as determined by EI.

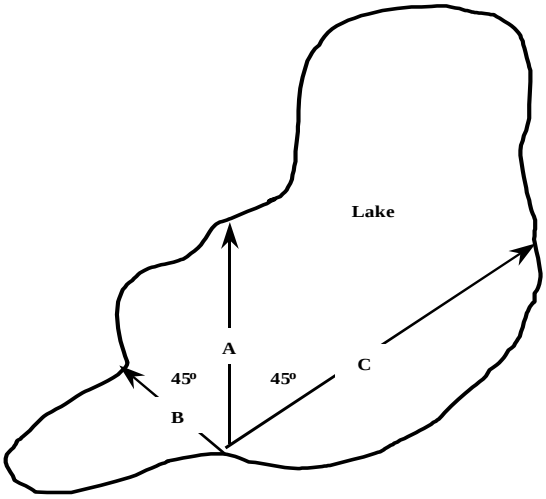
(3) BANK EDGE RECESSION MEASUREMENTS. Methods of measuring bank edge recession shall include all of the following: establishment of a physical measurement reference line between at least 2 headstakes; date-imbedded photographs showing the initial installation of the reference line and headstakes; reference distance measures to the bank lip shall be reported on department supplied forms; and time between separate measurements shall equal or exceed 3 months during the open-water season.

Table 1. Erosion Intensity (EI) Score Worksheet. Applicants and department staff shall use this worksheet to calculate erosion intensity pursuant to s. NR 328.08(2).

SHORELINE VARIABLES	**DESCRIPTIVE CATEGORIES** EROSION INTENSITY VALUE IS LOCATED IN PARENTHESIS ON LEFT SIDE OF EACH CATEGORY BOX							**ASSIGNED EI**
AVERAGE FETCH[1]-, average distance (miles), across the open water to the opposite shore measure 45^0 other side of the perpendicular to the shoreline.	(0) <1/10	(2) 1/10 – 1/3	(4) 1/3-1	(7) 1 –3	(10) 3-10	(13) 10-30	(16) >30	
DEPTH AT 20 FEET, Depth of water (feet) 20 feet from shoreline	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12			
DEPTH AT 100 FEET, depth of water (feet) 100 feet from shoreline	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12			
BANK HEIGHT[2], height of bank (feet), measure from toe of the bank to top of the bank-lip.	(1)<1	(2) 1-5	(3) 5-10	(4) 10-20	(5) >20			
BANK COMPOSITION composition and degree of cementation of the sediments	(0) rock, marl, tight clay, well cemented sand (dig with a pick)		(7) soft clay, clayey sand, moderately cemented (easily dug with a knife)		(15) uncemented sands or peat (easily dug with your hand)			
INFLUENCE OF ADJACENT STRUCTURES, likelihood that adjacent structures are causing flank erosion at the site	(0) no hard armoring on either adjacent property	(1) hard armoring on one adjacent property	(2) hard armoring on both adjacent properties	(3) hard armoring on one adjacent property with measurable recession	(4) hard armoring on both adjacent properties with measurable recession adjacent to both structures			
AQUATIC VEGETATION[3] type and abundance of vegetation occurring in the water off the shoreline	(0) rocky substrates unable to support vegetation.	(1) dense or abundant emergent, floating or submerged vegetation		(4) scattered or patchy emergent, floating or submergent vegetation		(7) lack of emergent, floating or submergent vegetation		
BANK VEGETATION, type and abundance of the vegetation occurring on the bank face and immediately on top of the bank lip	(0) bank compose of rocky outcropping unable to support vegetation		(1) dense vegetation, upland trees, shrubs and grasses, including lawns		(4) clumps of vegetation alternating with areas lacking vegetation		(7) lack of vegetation (cleared), crop or agricultural land	
BANK STABILITY, The degree to which bank and adjacent area (within 10 feet of the bank-lip) is stabilized by natural ground, shrub, and canopy vegetation (outside a 10' pier access corridor). Human disturbance is typified by tree removal, brushing, mowing, and lawn establishment.	(0) established lawn with few canopy trees	(1) established lawn with moderate to dense canopy trees		(4) moderate to dense natural ground vegetation and canopy trees with shrub layer substantially reduced; or few canopy trees with moderate to dense natural shrub layer.			(7) moderate to dense canopy trees with moderate to dense natural shrub layer; or other natural features prevents establishment of vegetation.	
SHORELINE GEOMETRY general shape of the shoreline at the point of interest plus 200 yards on either side.	(1) coves or bays			(4) irregular shoreline or straight shoreline			(8) headland, point, or island	
SHORE ORIENTATION[4] geographic direction the shoreline faces	(0) < 1/3 mile fetch	(1) north to east to south-southeast (349^0-360^0, 1^0-168^0)		(4) south to west-southwest (169^0-258^0)			(8) west to north-northwest (259^0-349^0)	
BOAT WAKES[5] proximity to and use of boat channels	(1) no channels within 100 yards, broad open water body, or constricted shallow water body; or channels within no-wake zones		(6) thoroughfare within 100 yards carrying limited traffic, or thoroughfare 100 yards to ½ mile offshore carrying intensive traffic		(12) thoroughfare within 100 yards carrying intensive traffic (unregulated boating activity)			
EROSION INTENSITY SCORE (EI) →								

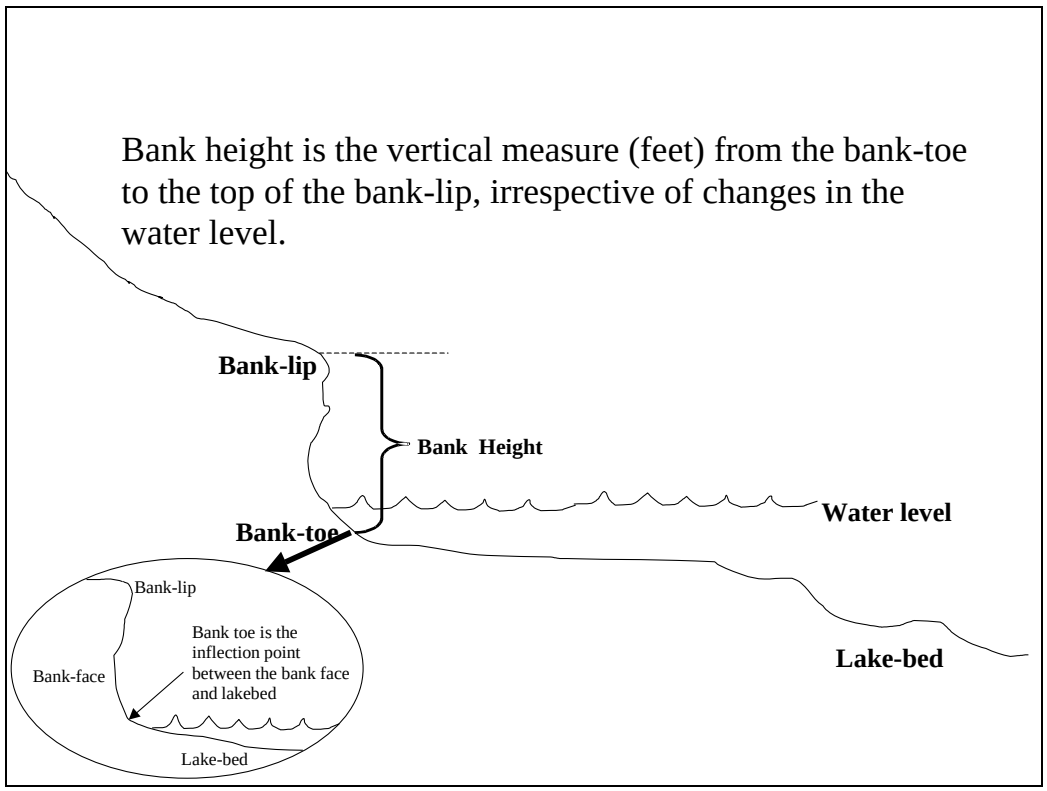
Note: Table 1 is adapted from Knutson, P. L., H. H. Allen, and J. W. Webb, 1990. "Guidelines for Vegetative Erosion Control on Wave-Impacted Coastal Dredged Material Sites, "Dredging Operations Technical Support Program Technical Report D-90-13,U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS 39180, 35 pp.

[1] Average fetch: The following diagram describes the calculation of average fetch.



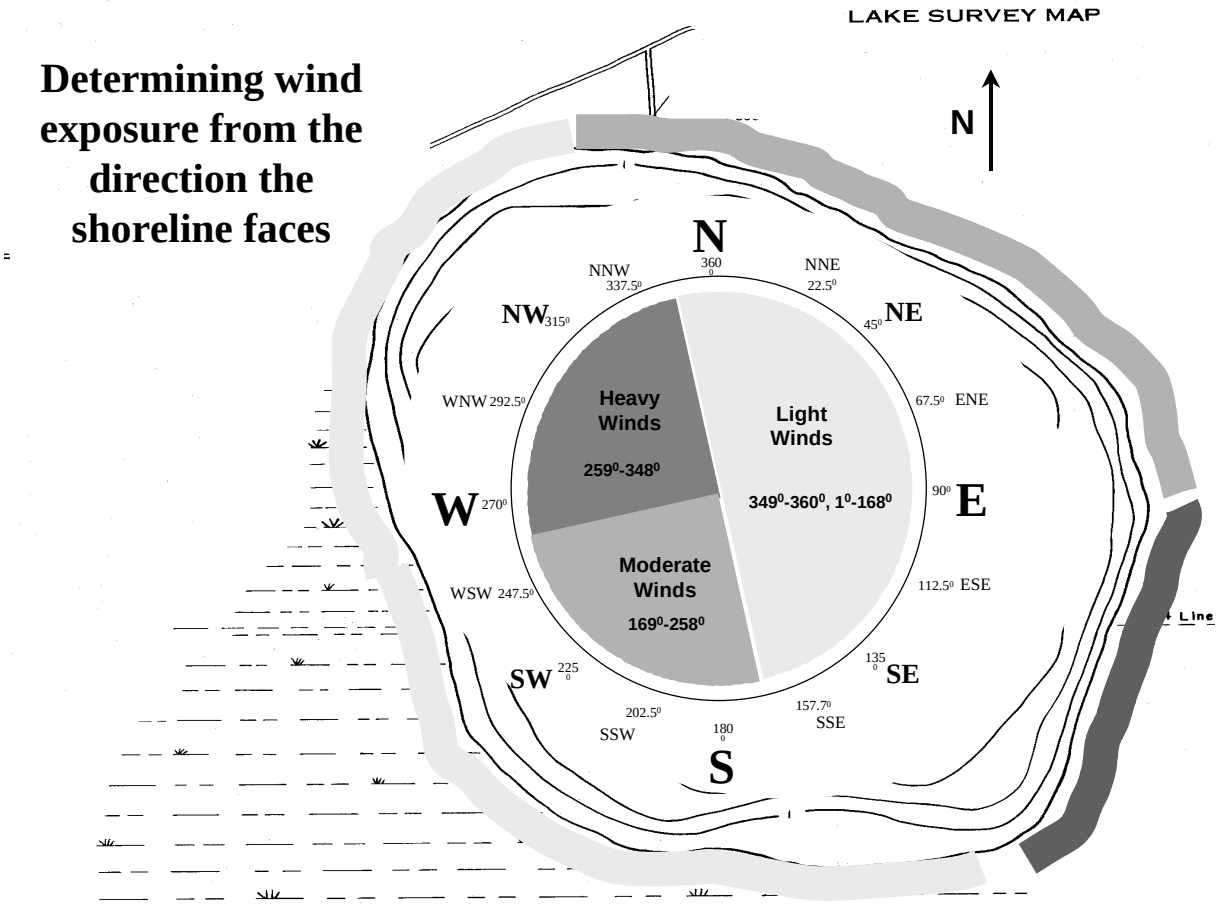
$$ave.\ fetch = (B + C)/2$$

[2] Bank height: The following diagram describes the features of the bank for the purpose of accurately measuring bank height



[3]Aquatic vegetation: Dense or abundant means that on average 50-100% of the bottom is visually obstructed by plants during the growing season, defined by the dates June 1 through September 15. Scattered or patchy means that on average 1-49% of the bottom is visually obstructed by plants during the growing season, defined by the dates June 1 through September 15. Absent means that on average < 1% of the bottom is visually obstructed by plants during the growing season, defined by the dates June 1 through September 15.

[4] Shoreline Orientation: The following lake map shows an example of accurately determining shoreline orientation



[5]Boating: A thoroughfare is identified as physical narrowing of the waterbody that by its nature intensifies boating activity near the shore. Thoroughfares which are 250 yards or wider are not scored 12 points, unless the depth contours of the thoroughfare constricts boating activity in close proximity to one shore, and the traffic is intensive. Intensive traffic is defined by a location where at least 50% of the public boating access available must pass through the thoroughfare to reach the open water of the lake, provided the waterway has a total of more than 60 car-trailer units. Limited traffic is defined by a location where at least 30% of the public boating access available must pass through the thoroughfare to reach the open water of the lake, provided the waterway has a total of more than 40 car-trailer units.

NR 328.09 Enforcement. (1) Noncompliance with the provisions of ss. 30.12, 30.20 and 30.206, Stats., this chapter, or any conditions of an exemption, general permit or individual permit issued by the department, constitutes a violation and may result in a forfeiture, fine or imprisonment. The department may seek abatement under s. 30.294, Stats., for any activity in violation of ss. 30.12, 30.20 and 30.206, Stats.

(2) If the activity may be authorized by a general permit under s. 30.206, Stats., failure of an applicant to follow the procedural requirements may not, by itself, result in abatement of the activity.

(3) When an after-the-fact permit application has been filed with the department, the department shall follow the procedures in ch. NR 301 for violations.

(4) Any violation of these rules shall be treated as a violation of the statutes they interpret or are promulgated under.

(5) No person may place a shore erosion control structure in a navigable waterway if the activity is not eligible for an exemption, authorized by a general permit or individual permit issued under this chapter, or otherwise authorized under this chapter.

SECTION 3. EFFECTIVE DATE. This rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

SECTION 4. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on December 8, 2004.

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Scott Hassett, Secretary

(SEAL)