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## WISCONSIN LEGISLATIVE COUNCIL RULES CLEARINGHOUSE

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**Ronald Sklansky**  
*Clearinghouse Director*

**Richard Sweet**  
*Clearinghouse Assistant Director*

**Terry C. Anderson**  
*Legislative Council Director*

**Laura D. Rose**  
*Legislative Council Deputy Director*

### CLEARINGHOUSE REPORT TO AGENCY

[THIS REPORT HAS BEEN PREPARED PURSUANT TO S. 227.15, STATS. THIS IS A REPORT ON A RULE AS ORIGINALLY PROPOSED BY THE AGENCY; THE REPORT MAY NOT REFLECT THE FINAL CONTENT OF THE RULE IN FINAL DRAFT FORM AS IT WILL BE SUBMITTED TO THE LEGISLATURE. THIS REPORT CONSTITUTES A REVIEW OF, BUT NOT APPROVAL OR DISAPPROVAL OF, THE SUBSTANTIVE CONTENT AND TECHNICAL ACCURACY OF THE RULE.]

#### CLEARINGHOUSE RULE 01-103

AN ORDER to create chapter NR 328, relating to department standards for erosion control in lakes and impoundments.

Submitted by **DEPARTMENT OF NATURAL RESOURCES**

09-10-01 RECEIVED BY LEGISLATIVE COUNCIL.

10-05-01 REPORT SENT TO AGENCY.

RS:DLL:jal;ksm

**LEGISLATIVE COUNCIL RULES CLEARINGHOUSE REPORT**

This rule has been reviewed by the Rules Clearinghouse. Based on that review, comments are reported as noted below:

1. STATUTORY AUTHORITY [s. 227.15 (2) (a)]

Comment Attached      YES       NO

2. FORM, STYLE AND PLACEMENT IN ADMINISTRATIVE CODE [s. 227.15 (2) (c)]

Comment Attached      YES       NO

3. CONFLICT WITH OR DUPLICATION OF EXISTING RULES [s. 227.15 (2) (d)]

Comment Attached      YES       NO

4. ADEQUACY OF REFERENCES TO RELATED STATUTES, RULES AND FORMS [s. 227.15 (2) (e)]

Comment Attached      YES       NO

5. CLARITY, GRAMMAR, PUNCTUATION AND USE OF PLAIN LANGUAGE [s. 227.15 (2) (f)]

Comment Attached      YES       NO

6. POTENTIAL CONFLICTS WITH, AND COMPARABILITY TO, RELATED FEDERAL REGULATIONS [s. 227.15 (2) (g)]

Comment Attached      YES       NO

7. COMPLIANCE WITH PERMIT ACTION DEADLINE REQUIREMENTS [s. 227.15 (2) (h)]

Comment Attached      YES       NO



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## RULES CLEARINGHOUSE

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### CLEARINGHOUSE RULE 01-103

#### Comments

**[NOTE: All citations to "Manual" in the comments below are to the Administrative Rules Procedures Manual, prepared by the Revisor of Statutes Bureau and the Legislative Council Staff, dated September 1998.]**

#### 2. Form, Style and Placement in Administrative Code

a. The one-sentence analysis of the rule does nothing more than identify the subject of the rule. It does not analyze, or even summarize, the rule. This can hardly be said to comply with the requirement of s. 227.14 (2), Stats., for a plain language analysis.

b. Section NR 328.01 is all explanatory, background information. It does not create substantive requirements, which is the kind of material usually placed in rules. This material would be more appropriately put in a guidance document for distribution to permit applicants. Alternatively, it could be put in notes to the rule or recast as departmental findings to support the specific provisions of the rule.

c. The rule frequently fails to make a complete statement of what it is intending, leaving a portion of its meaning to be inferred from context or from titles (which are not legally enforceable parts of the rule). For example, s. NR 328.02 (1) should make clear that s. 30.12 (2) and (3) (a) 3., Stats., allow the Department of Natural Resources (DNR) to issue a permit *for the placement of materials or structures on the bed of a navigable water*. That same subsection should also make clear that the purpose of that subchapter is to *establish standards for the granting of such permits* to avoid adverse effects, among other things. Section NR 328.05 (1) should specify what the alternative shore protection measures that it refers to are alternatives to, while s. NR 328.05 (2) should clearly state what should not be allowed to intrude into a waterway beyond the extent necessary to provide a sound foundation. Sections NR 328.08 and 328.23 are also deficient. For examples of good drafting, see s. NR 328.09 (2) and (3).

d. The rule frequently fails to use the active voice, resulting in unnecessary ambiguity. To the extent practical, rule provisions should be written in a form such as "X shall do Y" or "X may do Y." For example, the first sentence of s. NR 328.06 should read something like the following: "A riparian property owner who proposes to install shore erosion control shall submit an application to the department on a form provided by the department." Again, for examples of good drafting, see s. NR 328.09 (2) and (3).

e. Section NR 328.07 is particularly ambiguous as a result of both implying information that is not stated explicitly and using the passive voice. It should be reformatted to explicitly state that the department may approve permits for erosion control structures at the specified sites only using the specified techniques and the specified permitting processes. To achieve the greatest clarity, it may be necessary to further subdivide this section, for example, by creating separate subsections distinguishing techniques allowed at a low-energy site under a short-form permit from those allowed at a low-energy site under a long-form permit.

f. Definitions created in the rule often include substantive or descriptive material that should be placed in a substantive provision of the rule or in a note. For example, this comment applies to everything except the first sentences in the definitions of "biological erosion control," "permanent breakwater," "revetement," "temporary breakwater" and "vegetated armoring," and most of the definition of "integrated toe protection."

g. To separate substance from definition, the definition of "predicted storm-wave height" should be reduced to "the wave height estimated under s. NR 328.\_\_\_\_." A substantive provision should be created to specify how to calculate the predicted storm wave height. (Note that the journal articles referred to in the definition should be properly incorporated by reference, if references to them are retained in the rule.)

h. A narrative text should be devised to describe slopes rather than the insiders' shorthand of "1H:2V" as used in s. NR 328.04 (3) and elsewhere in the rule.

i. The definition of "bulkhead" should read: "a vertical structure 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." Any discussion of what bulkheads are commonly constructed of should be omitted or placed in a note. Note that this term is generally understood and so this definition most likely is not necessary.

j. *Webster's Third New International Dictionary, Unabridged*, defines "fetch" as: "4. the distance over open water or land over which the wind blows <...> specif.: the distance traversed by waves without obstruction (as when caused by steady winds)." This leads to two observations. First, since "fetch" means a distance, the term "fetch length" is redundant. Second, with this perfectly serviceable dictionary definition, there is no need to define the term in the rule.

k. Two other terms with standard dictionary definitions that do not need defining in the rule are "revetement" and "riprap."

l. The definition of "fetch length" uses the term "shore protection point of interest" and the definitions of "high energy site," "low energy site," and "moderate energy site" use the term "shore protection site." These terms are undefined and inconsistent with each other. Since subsequent provisions use the simpler term "site," it is suggested that the definitions use the simpler term, as well.

m. In s. NR 328.04 (18), the phrase "Hard armor" should be replaced by the defined term "Hard armored."

n. Section NR 328.07 (4) (b) 2. should not be given a title, since other comparable subunits of that subsection and paragraph are not given titles. Further, since the material in sub. (4) (b) does not grammatically lead into subds. 1. and 2., this material should be renumbered as subd. 1., and subds. 1. and 2. should be renumbered as subds. 2. and 3.

o. Section NR 328.07 (4) (b) 2. contains a great deal of information and many specific requirements, compressed into very little text. This warrants expansion into a paragraph or even subsection of its own, with appropriate subdivisions.

p. Table 1, actually a worksheet, should be given a title and some descriptive information indicating what it is and how it is used. The single reference to it in s. NR 328.07 (4) (b) 1. does not seem sufficient.

q. Since s. NR 328.08 has only one subsection, s. NR 328.08 (1) (intro.) should be renumbered s. NR 328.08 (intro.), the paragraphs renumbered as subsections and the remaining subunits should be renumbered accordingly.

r. Section NR 328.08 (1) (b) (intro.) should end with the phrase "including all of the following:". Also, the material beginning with "including fish and wildlife habitat," should be incorporated into the list that follows that introduction.

s. Section NR 328.08 (1) (b) 5. (intro.) should end with the phrase "including all of the following:".

t. The second sentences of s. NR 328.08 (1) (b) 2., 4., and 5. c. should be placed in notes.

u. Section NR 328.08 (1) (b) 5. c. should begin with a phrase such as: "Potential for impacts on." However, the words "potential for" do not seem necessary for this subdivision paragraph or for the other subdivision paragraphs in that subdivision.

v. In s. NR 328.08 (1) (c) 2., the notation "i.e." should be replaced with the phrase "such as" and the notation "etc." should be replaced with an appropriate catchall description.

w. It appears that s. NR 328.08 (1) (c) 12. and 13. should be numbered s. NR 328.08 (1) (d) and (e). [But see comment 2. q., above.]

x. The substance of s. NR 328.10 should be combined with s. NR 328.03, since both address applicability. Also, in the third sentence of this provision, the first occurrence of the word "of" should be "or"; in the last sentence, "enforce" should be replaced by "in force."

y. A breakwater is a structure, not the placement of material; the definition in s. NR 328.22 (1) should be rewritten to reflect this. However, again, is this definition for a commonly understood term necessary? Is the definition of "structure" necessary?

z. Section NR 328.23 (intro.) should end with the phrase, "all of the following apply:". [See also s. NR 328.24 (intro.).]

#### **4. Adequacy of References to Related Statutes, Rules and Forms**

- a. A copy of the form required under s. NR 328.06 should be provided with the rule.
- b. The cross-reference in s. NR 328.07 (intro.) is incorrect. Presumably, it should refer to sub. (4).

#### **5. Clarity, Grammar, Punctuation and Use of Plain Language**

a. In s. NR 328.01 (3), the use of the notation "/" should be replaced by the word "or" in the last sentence. In sub. (4), the fifth sentence should conclude with the word "settings" and the new sixth sentence should begin with the word "Therefore,".

b. The term "hard armored" is an adjective, while the term "hard armoring" is a noun. These terms cannot have the same meaning, as s. NR 328.04 (8) suggests. Also, what are "mechanical components" of an erosion control structure? This implies a machine-like aspect of the structure--is this what is intended?

c. "Integrated toe management" is a noun but s. NR 328.04 (10) defines it as if it were a verb. If this definition is retained, it should be rewritten.

d. In s. NR 328.04 (12) and (13), "1.0 feet" should be replaced by "1.0 foot." Also, the rule does not specifically assign a definition to a situation in which wave height is exactly one foot or exactly 2.3 feet.

e. In ss. NR 328.04 (23) and 328.05 (1), the word "a" should be replaced by the word "an" before the words "offshore" and "erosion," respectively.

f. Section NR 328.07 (4) (a) 2. applies only to sites with a slope of exactly 1:2. Should this be a slope of 1:2 or greater?

g. As written, s. NR 328.07 (4) (b) (intro.) allows either the applicant or DNR to invoke the exceptions that follow. It would appear that DNR could not overcome the applicant's belief that the exception should apply. Is this the intended effect? Also, the phrase "as a result of unique site conditions" should be set off by commas.

h. In s. NR 328.07 (4) (b) 1., the symbols meaning greater than and less than should be replaced by the words. Also, the phrases "in the low energy category," "in the moderate energy category," and "in the high energy category" should be replaced by the phrases "listed in sub. (1)," "listed in sub. (2)," and "listed in sub. (3)," respectively.

i. In s. NR 328.22 (5), why is the definition of the term "structure" different from the definition of the same term in s. NR 328.04 (22)?

ORDER OF THE STATE OF WISCONSIN  
NATURAL RESOURCES BOARD  
CREATING RULES

The Wisconsin Natural Resources Board proposes an order to create NR 328 relating to department standards for erosion control in lakes and impoundments.

FH-31-01

Analysis prepared by the Department of Natural Resources

Statutory authority: s. 30.2035, Stats. + 227.  
Statutes interpreted: s. 30.12(2) and (3)(a)3. Stats.

*no analysis*

This order codifies the findings of a department study on shoreline protection measures as required under s. 30.2035, Stats., to prevent adverse effects caused during and after shore protection construction activities and to achieve consistency in the application of navigable water laws for the construction of erosion control structures.

SECTION 1. Chapter NR 328 is created to read:

*TOC?*

*2*

CHAPTER NR 328  
STANDARDS FOR SHORE EROSION CONTROL  
IN LAKES AND IMPOUNDMENTS

Subchapter I – Shore Protection Structures

*?*  
NR 328.01 Introduction. (1) Natural shore erosion control is a complex set of processes by which the power of waves and water currents is diminished and erosion lessened. Constructed shore erosion control is a public rights and interest issue because of potentially adverse impacts on shoreline and nearshore habitat, water quality, nearby riparian property owners, and users of the affected public waters.

(2) The main process in natural shore erosion control is dissipation of water energy. Secondary processes include: the formation of nearshore shoals and bars, building of gentle nearshore and beach slopes, and growth of vegetation. Nearshore shoals and bars form as 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.

(3) Vegetation is an important element in natural lakeshore protection and provides erosion control through several mechanisms. The plant root system helps hold the soil together and increases the overall bank stability by its binding network structure (the ability of roots to hold soil particles together). Exposed vegetation (stalks, stems, branches, and foliage) can increase the resistance to flow, dampen waves, and reduce the local flow velocities, causing the flow to dissipate energy against the plant rather than the soil. Vegetation also acts as a buffer against the abrasive effect of transported materials. Finally close-growing vegetation can induce sediment deposition by causing zones of slow velocity and low shear stress near the bank, allowing coarse sediments to deposit. Vegetation is

*2*  
*put in note?*  
*rest to as findings?*



also often less expensive than most structural methods; it improves the conditions for fisheries and wildlife, improves water quality, and can protect natural scenic beauty and cultural/archeological resources. X

(4) Location standards are setting-dependent and based on erosive energy at a site as measured by predicted storm-wave height. 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 most moderate energy sites vegetation can effectively meet erosion control needs without infringement on the public interest. Replacement of natural shoreline erosion control with hard structures or armoring in low- and many moderate-energy settings is often unnecessary and has harmful cumulative environmental side effects. Shore protection from vegetation alone may be inadequate in some moderate-energy settings and many high-energy settings, therefore, methods that rely on technical structures or a combination of vegetation with technical structures (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, because they have less adverse effects on waterways and adjoining property than bulkheads. X

*established? requires to do what?*  
**NR 328.02 Purpose.** (1) Section 30.12(2) and (3)(a)3., Stats., allows a permit to be granted if a structure will not be detrimental to public rights or interests in the navigable waterway. It is recognized that without adequate controls serious degradation of water quality, fish and wildlife habitat, and public interests in recreation and natural scenic beauty could occur during and after the construction of shore protection structures in navigable waterways. It is the purpose of this subchapter to avoid or minimize any unavoidable adverse effects caused during and after such construction activities. (5)

(2) Section 30.2035, Stats., requires the department to conduct a study on shore protection measures, including the use of retaining walls, and the environmental impact that these structures can have. This subchapter is promulgated pursuant to s. 30.12(2) and (3)(a)3., Stats., to implement the recommendations of the study and to achieve consistency in the application of s. 30.12(2) and (3)(a)3., Stats., to the construction of erosion control structures.

*how relate to other rule implementing 30.12? NR 322*  
**NR 328.03 Applicability.** This subchapter applies to all applications for a permit pursuant to s. 30.12(2) or (3)(a)3., Stats., to construct shore erosion control structures on the bed and bank of a lake or impoundment.

**NR 328.04 Definitions.** In this subchapter and in s. 30.12(2) or (3)(a)3., Stats.: (2)

(1) "Bank" means the land surface abutting the bed of any navigable waterway which, either prior to any project or alteration of land contours or as a result of the proposed project or alteration, slopes or drains without complete interruption into the waterway.

(2) "Biological erosion control" means a technique that relies on plant materials as the main structural elements in a shoreline protection system. Biological shore protection techniques are comprised of living or organic materials, or both, such as native grasses, sedges and forbs; live stakes and posts; jute netting; and fiber rolls and mats. All materials used in biological shore protection techniques shall be biodegradable. Temporary

*notes on substantive provisions*

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

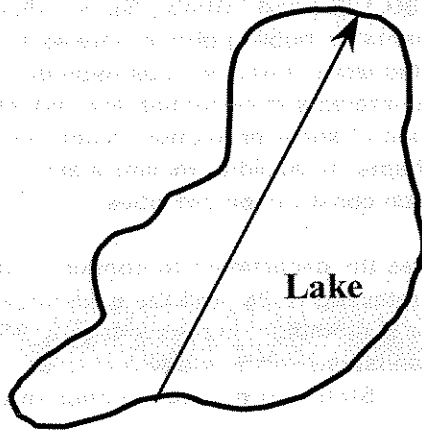
(3) "Bulkhead" means a vertical structure having a slope greater than 1H:2V commonly constructed of timber, rock (gabions), concrete, or steel or aluminum sheet piling. The structure is installed parallel to the shore and is intended to retain or prevent the sliding and slumping of land, while protecting the adjacent upland area from wave action.

write out note (2)

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

(5) "Fetch" means the area in which waves are generated by a wind having a fairly constant direction and velocity (speed).

(6) "Fetch length" means the longest continuous distance measurement originating from the shore protection point of interest across the water surface to its opposite intersect with the shore or land.



Fetch length

Fetch: "4. the distance over <sup>open</sup> water or land over which the wind blows <sup>at</sup> speed: the distance traversed by waves without obstruction (as when caused by steady winds)"

(5)

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

nom or verb? (defined as noun)

(8) "Hard armored" or "hard armoring" means a designed structure based on engineering principles that relies solely on inert structural of mechanical components. Inert components include wood, stone, concrete, brick, plastics and synthetic polymers.

adj. noun - can't have same meaning

(9) "High energy site" means a shore protection site where the predicted storm-wave height is greater than 2.3 feet.

(10) "Integrated toe protection" means combining 2 separate methods: toe protection, which protects the base of the bank, the "toe", to the OHWM, and the remainder of the bank above the OHWM. The toe protection relies on materials, such as stone, armor units, fiber rolls or wattles to protect the base of the bank to the OHWM. 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,

(5)

(5)

substance

(2)

rolled erosion control products or wattles. Plant materials may also be incorporated as part of the shore protection design below the OHWM as well.

(11) "Long-form permit" means any permit required under s. 30.12(2), Stats.

(12) "Low energy site" means a shore protection site where the predicted storm-wave height is less than 1.0 feet. *foot*

5

(13) "Moderate energy site" means a shore protection site where the predicted storm-wave height is greater than 1.0 feet and less than 2.3 feet.

what happens at 1' or 2.3'

(14) "Offshore" means located a minimum of 8 horizontal feet from the ordinary high water mark.

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

(16) "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. 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. Hard armored permanent breakwater designs include stone dikes, barrier islands, stone islands and submerged offshore shoals.

2

at a point on a bank

(17) "Predicted storm-wave height" means the wave height estimated according to Young and Verhagen (1996) and Young (1997) by applying a statewide mean wind speed of 35 miles per hour (~~to~~), the applicant's mean lake depth, or mean depth of fetch transects, and the applicant's average fetch. *at the point*

2  
be there etc

Note: Statewide Mean windspeeds are estimated from Knox 1986.

(18) "Revetment" means a structure fitted to the slope and shape of the shoreline and are constructed of rock, concrete, cellular blocks or other similar materials. Revetments may incorporate plant material into their design. Revetments protect only the land behind them, and erosion may continue on adjacent shorelines. Slopes steeper than 1H:1.5V are generally unsuitable to revetments. Hard armor revetment designs include articulated concrete block systems and riprap. Vegetated revetment designs include vegetated concrete block systems, vegetated geogrids and vegetated riprap.

- needed?

substance

(19) "Riprap" means a layer 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. Riprap is another term for one type of revetment. *note*

- needed?

(20) "Short-form permit" means any permit required under s. 30.12(3)(a), Stats.

(21) "Similar material" in s. 30.12(3)(a)3., Stats., means material, such as concrete, masonry, steel or wood, which is designed and constructed for the purpose of protecting the bank and adjacent upland from erosion.

- delete -  
not used in  
this rule

(22) "Structure" means any artificial creation which has a defined shape, size, form and utility as opposed to a mere pile or dump of materials.

(23) "Temporary breakwater" means a <sup>or</sup> offshore structure consisting of biodegradable materials, such as jute, coir fiber, willow stakes, branch box, or a structure that will be removed after a set period of time. 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. Breakwater designs requiring removal after a set period of time are also considered temporary. Biological temporary breakwater designs degrade naturally and include branchbox breakwaters and fiber logs.

5

substance

(24) "Vegetated armoring" means a technique that integrates biological and technical methods. They use a combination of plant materials with inert structural components. Inert components include wood, stone, concrete, plastics and synthetic polymers. Vegetated armoring techniques fall into the following 4 categories: integrated toe protection, revetment, bulkhead and breakwater.

ditto

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

**NR 328.05 General policy.** (1) Alternative shore protection measures such as minimal grading of the bank and adjoining upland to a stable slope, revegetation or other bioengineering techniques can effectively stabilize some shorelines without the need of a permit. The department may determine that it is detrimental to the public interest to authorize an erosion control structure if alternative methods can protect the shoreline and adjacent uplands with minimal adverse environmental impacts.

Note: Grading more than 10,000 square feet of the bank and adjoining upland requires a grading permit.

substance

(2) The extent of intrusion into a waterway shall be limited to the distance necessary to provide a sound foundation and achieve structural stability. Bulkheads shall be constructed as near as practicable to the ordinary high water mark to minimize intrusion into the adjacent waterway.

2

**NR 328.06 Permit application.** The application for a s. 30.12(2) or (3)(a)3., Stats., permit shall be submitted by the riparian property owner or duly authorized agent on a form provided by the department and include all required information. The permit application shall include data used to determine the energy level of the application site. The permit application shall also include cumulative erosion potential data and values, or bank edge recession estimates when appropriate.

a person who proposes to...

4  
copy of form?

**NR 328.07 Erosion control methods and permit process.** Except as provided in s. NR 328.06(4) (b), eligible methods of erosion control and permit processing are as follows based on the erosion potential at the applicant's shore site:

doesn't exist

(1) **LOW ENERGY SITES.** At low energy sites:

(a) All biological erosion control methods (including fiber rolls and mats, live stakes, brush mattresses and layers, branch boxes, temporary screens) and temporary breakwaters are eligible. Short-form permits shall be used.

different from  
copy of 1986

(b) Hard armored erosion control methods are prohibited except as provided in sub. (4)(a).

(2) MODERATE ENERGY SITES. At moderate energy sites:

(a) All biological erosion control methods as described in sub. (1)(a) and temporary breakwaters are eligible. Short-form permits shall be used.

(b) Vegetated armoring limited to toe protection and revetments, such as vegetated block systems, vegetated riprap, armored toe with bank revegetation, are eligible. Short-form permits shall be used.

(c) Hard armored revetments, such as riprap or concrete block systems, are eligible. Long-form permits are required.

(d) Hard armored bulkheads and permanent breakwaters, including wood, sheet pile, and concrete walls, and vegetated bulkheads and permanent breakwaters, such as gabions, are prohibited except as provided in sub. (4)(a). *Permits?*

(3) HIGH ENERGY SITES. At high-energy sites:

(a) All biological erosion control methods as described in sub. (1)(a) and temporary breakwaters are eligible. Short-form permits shall be used.

(b) Vegetated armoring limited to toe protection and revetments, such as vegetated block systems, vegetated riprap, armored toe with bank revegetation, are eligible. Short-form permits shall be used.

(c) Hard armored revetments, such as riprap or concrete block systems, are eligible. Short form permits shall be used.

(d) Hard armored bulkheads or permanent breakwaters, including wood, sheet pile, and concrete walls, and vegetated bulkheads or permanent breakwaters, such as gabions, are prohibited except as provided in sub. (4)(a).

(4) EXCEPTIONS. (a) Hard armored and vegetated bulkheads are eligible for authorization using long-form applications in the following settings:

1. Locations where vertical docking facilities are needed such as municipal or industrial harbor areas and boat marinas.
2. Navigational channels actively used as thoroughfares or for access, with slopes 1H:2V, showing evidence of erosion, where alternative methods of erosion control would impede navigation.
3. Locations where slopes are 1H:2V or steeper and where the applicant demonstrates that alternative measures are not practicable taking into consideration bank height and the location of permanent structures.

(b) Where an applicant or the department believes that, as a result of unique site conditions, predicted storm wave heights might insufficiently predict erosion potential, either

*at least 2 ft  
write out*

*5*

of the following standards and methods shall be applied to determine whether erosion control methods from an adjacent energy category may be authorized. A long-form permit process is required.

*in sub 2 or 3*

2.8. A site where the cumulative erosion potential value (CEPV) as described in Table 1, is ~~50~~ <sup>shall?</sup> may be restricted to methods in the low energy category; a site where the CEPV ~~50 and 70~~ is eligible for methods in the moderate energy site; A site where the CEPV ~~70~~ is eligible for methods in the high energy site.

*listed in sub. (1)*

*(2)*

*write out*

3.9. Bank edge recession measurements. Sites where bank edge recession exceeds 4 feet per year are eligible for erosion methods of a high energy category; sites where bank edge recession ranges from 2 and 4 feet per year are eligible for erosion control methods of a moderate energy category; sites where bank-edge recession is less than 2 feet per year may be restricted to erosion control methods of a low energy category. 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 edge shall be reported on department supplied forms; and time between separate measurements shall equal or exceed 3 months during the open-water season. Upon receipt of the applicant's bank recession data department staff may conduct a site visit to verify methods and assess the applicant's site.

*listed in sub. (3)*

*listed in sub. (2)*

*write out more fully*

*and if they can conflict they conflict?*

②  
Description

Table 1.

SHORELINE VARIABLES	<b>DESCRIPTIVE CATEGORIES</b> EROSION POTENTIAL VALUE (EPV) LOCATED IN PARENTHESIS ON LEFT SIDE OF EACH CATEGORY BOX						ASSIGNED EPV	
<b>FETCH</b> , average distance (miles) of open water measured 45 degrees either 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	
<b>DEPTH AT 20 FEET</b> , Depth of water (feet) 20 feet from shoreline	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12			
<b>DEPTH AT 100 FEET</b> , depth of water (feet) 100 feet from shoreline	(1) <1	(2) 1-3	(3) 3-6	(4) 6-12	(5) >12			
<b>BANK HEIGHT</b> , height of bank (feet) at the shoreline or just behind the sediment beach	(1) >20	(2) 20-10	(3) 10-5	(4) 5-1	(5) <1			
<b>BANK COMPOSITION</b> composition and degree of cementation of the sediments	(0) Rock, marl, tight clay, well cemented sand (dig with a pick or swamp forest)		(7) soft clay, clayey sand, moderately cemented (easily dug with a knife)		(15) uncemented sands or peat (easily dug with you hand)			
<b>SAND BEACH WIDTH</b> Width of sand beach (feet) between bank and shoreline	(0) wetland or less than 1/3 mile fetch	(1) >20	(2) 20-10	(3) 10-5	(4) 5-1	(5) less than 1 or broad marsh		
<b>OFFSHORE VEGETATION</b> type and abundance of vegetation occurring in the water off the shoreline	(1) dense or abundant emergent, floating, or submerged vegetation		(4) scattered or patchy emergent, floating, or submerged vegetation		(7) lack of emergent, floating, or submerged vegetation			
<b>SHORE VEGETATION</b> type and abundance of the vegetation occurring on the bank face and immediately on the bank lip	(0) no sediment beach	(1) dense continuous vegetation, marsh fringe, and shrubs	(4) scattered or patchy vegetation, upland trees and shrubs	(7) lack of vegetation				
<b>BANK VEGETATION</b> type and abundance of the vegetation occurring on the bank and immediately on top of the bank lip	(1) dense vegetation, upland trees, shrubs, and grasses		(4) clumps of vegetation alternating with areas lacking vegetation		(7) lack of vegetation (cleared), crop or agricultural land			
<b>SHORELINE GEOMETRY</b> general shape of the shoreline at the point of interest plus 200 yards on either side.	(1) coves		(4) irregular shoreline		(8) headland, point, or straight shoreline			
<b>SHORELINE ORIENTATION</b> general geographic direction the shoreline faces	(0) < 1/3 mile fetch	(1) south to east	(4) south to west	(8) west to north to east				
<b>BOAT WAKES</b> proximity to and use of boat channels	(1) no channels within 100 yards, broad open water body, or constricted shallow water body		(6) minor throughfare with 100 yards carrying limited traffic, or major channel 100 yards to 1/2 mile offshore		(12) major thoroughfare within 100 yards carrying intensive traffic.			
<b>CUMULATIVE EROSION POTENTIAL VALUE (CEPV) →</b>								

only 1 sub.

2

NR 328.08 Analysis criteria for long-form permits. (1) The department shall apply the following factors in evaluating permit applications:

(a) Whether alternative shore protection measures as described in s. NR 328.05 should be used in lieu of the proposed structure.

(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:

*all of the following*

*put these in list*

- 1. Interference with navigation and its incidents, including but not limited to swimming, boating, fishing and hunting.
- 2. Impacts on natural scenic beauty. (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.)

3. Development density.

4. Impacts on threatened or endangered species. (Survey information indicates that threatened or endangered species or their habitat are found near the site.)

5. Impacts on fish and wildlife habitat, including all of the following:

a. Potential for reduced density of woody cover in shallow water.

b. Potential for reduced density, coverage and diversity of nearshore vegetation, such as terrestrial, emergent, floating-leafed and submerged zones.

*Impacts on*

c. Designated sensitive areas, spawning or nursery habitat. (The structure and its associated activity located in or near spawning/nursery habitats or designated sensitive areas.)

d. Potential for change in nearshore substrate that reduces its suitability for habitat.

(c) The erosion exposure of the project site based on site-specific conditions, including:

- 1. Shoreline stability and shoreline recession rate.
- 2. Shoreline geometry *i.e.*, embayment, meander, straight, headland, points, etc.
- 3. Bank condition such as height, slope, soil composition and vegetation.
- 4. Water level fluctuation and management.
- 5. Severity of ice heave.
- 6. Degree of threat to a residential or commercial structure.
- 7. Fetch.



- 8. Nearshore bottom sediments and substrates.
- 9. Nearshore depth and slope.
- 10. Boating intensity and level of boating management.
- 11. Density and coverage <sup>of</sup> nearshore vegetation <sup>including</sup> such as terrestrial, emergent, floating-leafed and submergent zones.

- (d) ~~12~~. The effect of the project on the adjoining upland.
- (e) ~~13~~. The impact of the project on riparian use of the shoreline.

**NR 328.09 Permits.** (1) Permits shall be granted where the department finds that the provisions of this subchapter and the relevant standards contained in s. 30.12(2) or (3)(a)3., Stats., have been met. The department shall review all proposed activities subject to this chapter and shall determine whether the project proponent has shown, based on the analysis criteria, if the activities are in conformance with the provisions of this chapter. The department shall, upon request, meet with a project proponent and other interested persons to make a preliminary analysis of the potential for compliance with this chapter.

(2) The department may deny a permit application for a shore erosion control structure if the department determines there is no significant erosion problem or the shore protection structure would adversely affect public rights and interests in the waterway.

(3) The department may deny a permit application for a structure installed specifically for shore erosion control if an alternative method could adequately protect the shoreline and result in less adverse environmental impacts consistent with s. NR 328.05.

**NR 328.10 Existing structures.** All of the provisions of this subchapter apply to the replacement of erosion control structures. "Replacement" means a degree of structural changes to the erosion control structure by which a section of the structure is being recreated. For bulkheads, any repairs down to or at the footing of the structure are considered replacement. For revetments installation <sup>or</sup> replacement of filter fabric or base substrate is considered prima facie evidence of replacement. Repair or maintenance of structures is not subject to the provisions of this subchapter. Planting or replanting of vegetation is repair of the structure. For revetments and toe protection structures, redistribution of rock material is considered repair. Repair does not involve excavation of material. Conditions of pre-existing issued permits remain enforce unless amended by action of the department

**Subchapter II – Municipal Breakwater Permits**

**NR 328.20 Purpose.** The purpose of this subchapter is to establish when deposits of material constitute structures for the purpose of controlling shore erosion and to set criteria for determining when structures will be authorized under s. 30.12, Stats.

**NR 328.21 Applicability.** Permits for breakwaters may be issued to municipalities for placement in the following water bodies: Lake Koshkonong, Petenwell flowage, Castle Rock lake, Big Eau Pleine reservoir, Lake Nokomis – Rice River reservoir, Lake DuBay, Beaver Dam lake, Lake Buttes des Morts, Lake Poygan, Lake Winneconne, and Lake Winnebago.

Note: The listed waters are generally typified by following conditions – impounded; 5000 acres and larger; extensive water level fluctuation; high shoreline recession rates; historic loss of shoreline vegetation.

**NR 328.22 Definitions.** As used in this subchapter:

(1) "Breakwater" means the placement of stone, concrete or similar inert material 3 or more horizontal feet offshore, generally parallel to the shoreline for the purpose of controlling shore erosion and preserving or restoring aquatic habitat.

(2) "Comprehensive plan" means a plan that includes data on water resources, including public rights and interests in navigable waters; data on existing and potential uses of the water body and any use impairments; alternatives and recommended actions to protect or restore water resources or allocate uses of the water body.

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

(4) "Municipality" means any town, village, city or county in this state.

(5) "Structure" means anything man-made, having shape, form and utility either permanently or temporarily attached to or extending above the ground.

**NR 328.23 Standards** Breakwaters may be authorized where:

(1) They are determined by the department to be the best management practice to control shore erosion and preserve or restore aquatic habitat.

(2) The practice is specifically recommended for the purpose specified in sub. (1) in a comprehensive plan approved by the department for management of a specific water body and its watershed.

(3) The municipality agrees to comply with the requirements of s. 1.11, Stats.;

(4) The department has complied with the notice and hearing procedures in s. 30.02 (3) and (4), Stats.

**NR 328.24 Conditions of permits.** In addition to any conditions deemed necessary to protect public rights and interests in navigable waters under s. 30.12, Stats., any authorization issued by the department under this subchapter shall contain the following conditions:

(1) The structure shall remain under public ownership or control.

(2) No ancillary structures or facilities, other than scientific measuring devices and navigational markers, shall be located on or attached to the breakwater.

(3) The municipality shall take all necessary steps to ensure the safety of navigation in the vicinity of the breakwater. Where marking is used, it shall be in conformance with s. NR 5.09 and any federal or local requirements for similar structures.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on \_\_\_\_\_.

The rules 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.

Dated at Madison, Wisconsin \_\_\_\_\_.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By \_\_\_\_\_  
Darrell Bazzell, Secretary

(SEAL)

**NOTICE TO PRESIDING OFFICERS  
OF PROPOSED RULEMAKING**

Pursuant to s. 227.19, Stats., notice is hereby given that final draft rules are being submitted to the presiding officer of each house of the legislature. The rules being submitted are:

Natural Resources Board Order No. FH-31-01

Legislative Council Rules Clearinghouse Number 01-103

Subject of Rules Shore erosion control for  
inland lakes and flowages

Date of Transmittal to Presiding Officers January 30, 2002

Send a copy of any correspondence or notices pertaining to this rule to:

Carol Turner, Rules Coordinator  
DNR Bureau of Legal Services  
LS/5, 101 South Webster

Telephone: 266-1959  
e-mail: [turnec@dnr.state.wi.us](mailto:turnec@dnr.state.wi.us)

An electronic copy of the proposed rule may be obtained by contacting Ms. Turner

## REPORT TO LEGISLATURE

NR 328, Wis. Adm. Code  
Shore erosion control for inland lakes and flowages

Board Order No. FH-31-01  
Clearinghouse Rule No. 01-103

### Statement of Need

Several of Wisconsin's large inland flowages exhibit systemic problems related to water level management. One of the most severe problems is loss of their adjacent wetlands. Lateral recession rates of 5 to 10 feet per year are now common. Historically, these wetlands have been protected by summer drawdown (to reestablish emergency plants) or by placing of riprap against the face of the wetland. Permanent breakwaters are another newer approach that protects the wetland from erosion while promoting a natural transition zone. This approach entails the construction of an offshore, wave-arrestor structure to absorb wave energy which provides a quiet zone behind it. Aquatic plants soon colonize the quiet zone and provide a natural transition between the water and the wetland. The wave arrestors are typically linear rock structures placed 50 to 100 feet off shore, roughly parallel to the shoreline.

The proposed rule deals with opportunities to permit offshore permanent breakwaters for a special set of listed waters. These waters are typified by the following conditions – impounded; 2,500 acres and larger; extensive water level fluctuation; high shoreline/wetland recession rates; historic loss of shoreline vegetation. The proposed rule enables the Department to identify waters where permanent breakwaters are useful for erosion control and restoration of aquatic habitat. The purpose of the proposed rule is to establish where deposits of material constitute structures (as opposed to fill) for the purpose of controlling shore erosion and to set standards for determining when structures may be authorized under s. 30.12, Stats.

### Modifications as a Result of Public Hearing

The following modifications were made as a result of public comment:

Expanded eligibility to other similar public entities, including but not limited to, state and federal government, inland lake protection and rehabilitation districts or similar special purpose units of government, and public utilities.

Specifically identified owners of riparian upland adjacent to, or flowed lands underlying, such structures shall be co-applicants.

Broadened and clarified conditions of permits as related to public control.

Eliminated wording related to navigational marking.

Added waters to eligible list – Lake Sinnissippi, Lake Puckaway, Rainbow Flowage, Willow Flowage, Fox Lake, and impoundments of the Mississippi river.

Require structure be designed by professional engineer.

Appearances at the Public Hearings and Their Position

**October 15, 2001 – Madison**

In support – None

In opposition:

Bob Grundie, Northfield Block Co., S75 W31492 Arbor Drive, Mukwonago, WI 53149

As interest may appear:

Hank Sutton, Lake Rip Rap, Inc., 15890 Oak Lane, Girard, IL 62640

**October 16, 2001 – Stevens Point**

In support:

Mark E. Anderson, Consolidated Water Power Company, P.O. Box 8050 Wis. Rapids, WI 54495

In opposition – None

As interest may appear:

Clifford Anderson, 2941 Highway Y, Marshfield, WI 54449

Bernard P. Coerper, 1400 W. River Drive, Stevens Point, WI 54481

**October 17, 2001 – Oshkosh**

In support:

Debbie Johnston, Johnston Pile Driving, 611 Kennedy Avenue, Omro, WI 54963

Brady Johnston, Johnston Pile Driving, 611 Kennedy Avenue, Omro, WI 54963

In opposition:

Pete Van Airsdale, Winnebago Co. Land & Water Conservation Dept., 625 E. County Road Y,  
Oshkosh, WI 54901

Michael Haase, Calumet Co. LWCD, 206 Court Street, Chilton, WI 53014

As interest may appear:

Dan Rudereck, Lake Poygan Sportsman's Club, 7769 Haase Road, Larsen, WI 54947

Jeff Christensen, Radtke Contractors, Inc., 6408 State Road 110, Winneconne, WI 54986

Ron Koeppler, Lake Poygan Sportsman's Club, 7851 Cut-Off Lane, Larsen, WI 54947

Dick Koerner, 540 Sunrise Bay Road, Neenah, WI 54956

John Badnar, Winnebago Co. Land & Water Conservation Dept., P.O. Box 2808,  
Oshkosh, WI 54901

### Response to Legislative Council Rules Clearinghouse Report

The Legislative Council Rules Clearinghouse Report commented on both subchs. I and II to ch. NR 328. At the present time, the Department is only adopting subch. II to ch. NR 328. The comments relevant to subch. II have been incorporated into the proposed rule.

### Final Regulatory Flexibility Analysis

Permit requirements for riparian waterfront property owners altering their shoreline are already established under s. 30.12, Stats., and no further reporting requirements are imposed on small business. Therefore, pursuant to s. 227.114(8)(b), Stats., these rules will not directly affect small business and no analysis is required.

ORDER OF THE STATE OF WISCONSIN  
NATURAL RESOURCES BOARD  
CREATING RULES

The Wisconsin Natural Resources Board proposes an order to create NR 328, subch. II relating to department standards for erosion control in lakes and impoundments.

FH-31-01

Analysis prepared by the Department of Natural Resources

Statutory authority: s. 30.2035, Stats.

Statutes interpreted: s. 30.12(2) and (3)(a)3., Stats.

This order codifies the findings of a department study on shoreline protection measures as required under s. 30.2035, Stats., to prevent adverse effects caused during and after shore protection construction activities and to achieve consistency in the application of navigable water laws for the construction of erosion control structures.

SECTION 1. Chapter NR 328, subch. II is created to read:

**Chapter NR 328**

**Standards for Shore Erosion Control  
in Lakes and Impoundments**

**Subchapter II – Municipal Breakwater Permits**

**NR 328.20 Purpose.** The purpose of this subchapter is to establish when deposits of material constitute structures for the purpose of controlling shore erosion and to set criteria for determining when structures will be authorized under s. 30.12, Stats.

**NR 328.21 Applicability.** (1) **ELIGIBLE WATERWAYS.** Permits for breakwaters may be issued for placement in the following water bodies: Castle Rock and Petenwell flowages, Adams and Juneau counties; Lake Koshkonong, Dane, Jefferson, and Rock counties; Beaver Dam lake, Fox lake, and Lake Sinissippi, Dodge county; Lake Puckaway Green Lake county; Lake Nokomis – Rice River reservoir, Lincoln and Oneida counties; Big Eau Pleine reservoir, Marathon county; Lake DuBay, Marathon and Portage counties; Rainbow and Willow flowages, Oneida county; Lake Poygan, Winnebago and Waushara counties; Lake Winneconne and Lake Buttes des Morts, Winnebago county; Lake Winnebago, Calumet, Fond du Lac, and Winnebago counties; and impoundments of the Mississippi river.

**Note:** The listed waters are generally typified by following conditions – artificially impounded; 2500 acres and larger; extensive water level fluctuation; high rate of wetland/shoreline loss from erosion; and historic loss of shoreline vegetation.

(2) **WHO MAY APPLY.** (a) Permits for breakwaters may be issued to municipalities and similar public entities, including but not limited to, state and federal government, inland lake protection and rehabilitation districts or similar special purpose units of government and public utilities. Owners of riparian upland adjacent to, or flowed lands underlying, the structures shall be co-applicants if the municipality or public utility is not the riparian owner.



(b) As part of the permit application, a public entity shall provide information to demonstrate to the satisfaction of the department that the public entity has all of the following:

1. Statutorily assigned duties, authorities or requirements that may reasonably be construed to include control of shore erosion and protection of aquatic habitat.
2. A system of governance that allows participation in decision making by a range of public interests.
3. Institutional permanence of a duration similar to the life of the structure.

**NR 328.22 Definitions.** As used in this subchapter:

(1) "Breakwater" means the placement of stone, concrete or similar inert material 10 or more horizontal feet offshore, generally parallel to the shoreline for the purpose of controlling shore erosion and preserving or restoring aquatic habitat. Breakwater designs may include, but are not limited to, stone dikes, stone islands, barrier islands and submerged offshore shoals.

(2) "Comprehensive plan" means a plan that includes data on water resources, including public rights and interests in navigable waters; data on existing and potential uses of the water body and any use impairments; alternatives and recommended actions to protect or restore water resources or allocate uses of the water body.

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

(4) "Municipality" means any town, village, city or county in this state.

(5) "Structure" means anything man-made, having shape, form and utility either permanently or temporarily attached to or extending above the ground or lakebed.

**NR 328.23 Standards.** Breakwaters may be authorized where all of the following apply:

(1) They are determined by the department to be the best management practice to control shore erosion and preserve or restore aquatic habitat.

(2) The structure be designed by a licensed professional engineer to be stable under stated maximum water level and wave conditions in order to avoid a failed structure that quickly becomes a hazard to users of the waters.

(3) The practice is specifically recommended for the purpose specified in sub. (1) in a comprehensive plan approved by the department for management of a specific water body and its watershed.

(4) The requirements of s. 1.11, Stats., are met.

(5) The department has complied with the notice and hearing procedures in s. 30.02 (3) and (4), Stats.

**NR 328.24 Conditions of permits.** In addition to any conditions deemed necessary to protect public rights and interests in navigable waters under s. 30.12, Stats., any authorization issued by the department under this subchapter shall contain the following conditions:

(1) The structure shall remain under public ownership or control. Public ownership and control shall be established by documentation of at least one of the following as part of the permit application:

(a) Fee title ownership of the structure by a municipality or public entity.

(b) Lease with a term of 25 years or more of the structure to a municipality or public entity.

(c) Conservation easement on the structure held by a municipality or public entity that includes the rights to construct and maintain the structure, right of public access to the structure.

(d) Title to, lease of, or conservation easement securing necessary rights to use and management of the structure and the area to be protected from wave energy.

(2) No ancillary structures or facilities, other than scientific measuring devices and navigational markers, shall be located on or attached to the breakwater.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on December 5, 2001.

The rules 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.

Dated at Madison, Wisconsin \_\_\_\_\_.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By \_\_\_\_\_  
Darrell Bazzell, Secretary

(SEAL)