OHIO DEPARTMENT OF NATURAL RESOURCES

1501-6-10 TO 1501-6-13

RULES FOR DESIGNATING LAKE ERIE COASTAL EROSION AREAS

1501-6-10	DEFINITIONS
1501-6-11	DETERMINATION OF ANNUAL RECESSION RATES
1501-6-12	DETERMINATION OF ANTICIPATED RECESSION DISTANCES
1501-6-13	PREPARATION OF MAPS OF LAKE ERIE COASTAL EROSION AREAS

JUNE, 1996

1501-6-10 <u>DEFINITIONS</u>.

(A) "ANNUAL RECESSION RATE" MEANS THE AVERAGE RATE, EXPRESSED IN FEET PER YEAR, AT WHICH THE RECESSION LINE MOVES LANDWARD. THE ANNUAL RECESSION RATE SHALL BE BASED ON A TIME PERIOD NOT LESS THAN TEN YEARS NOR GREATER THAN THIRTY YEARS PRIOR TO THE YEAR THAT THE BASE-MAP IMAGERY WAS ACQUIRED. IN NO CASE SHALL THE ANNUAL RECESSION RATE USED TO CALCULATE THE ANTICIPATED RECESSION DISTANCE BE LESS THAN ZERO.

(B) "ANTICIPATED RECESSION DISTANCE" MEANS THE CENTER-WEIGHTED MOVING AVERAGE OF DISTANCES, EQUAL TO THIRTY TIMES THE ANNUAL RECESSION RATE, AS DETERMINED AT FIVE CONSECUTIVE TRANSECTS. ANTICIPATED RECESSION DISTANCES LESS THAN THIRTY TIMES THE “CALCULATED ACCURACY LIMIT” (REFER TO PARAGRAPH (H) OF THIS RULE) SHALL BE EQUAL TO ZERO.

(C) "BARRIER BEACH" MEANS A NARROW, ELONGATE SAND RIDGE RISING ABOVE LAKE LEVEL AND EXTENDING GENERALLY PARALLEL WITH THE MAINLAND SHORE, BUT SEPARATED FROM IT BY A BODY OF WATER OR A WETLAND.

(D) "BASE RECESSION LINE" MEANS THE RECESSION LINE MAPPED FROM SYNOPTIC AERIAL PHOTOGRAPHY, REMOTE SENSING IMAGERY, DIGITAL DATA, OR MAPS USED TO CREATE THE RECESSION-LINE BASE MAP UPON WHICH COASTAL EROSION AREAS ARE DESIGNATED. THE COASTAL EROSION AREA SHALL BE DESIGNATED BY MEASURING ANTICIPATED RECESSION DISTANCES FROM THE BASE RECESSION LINE.

(E) "BEACH" MEANS A ZONE OF UNCONSOLIDATED MATERIAL THAT EXTENDS LANDWARD FROM THE SHORELINE TO THE TOE OF THE BLUFF OR DUNE. WHERE NO BLUFF OR DUNE EXISTS, THE LANDWARD LIMIT OF THE BEACH IS EITHER THE LINE OF PERMANENT VEGETATION OR THE PLACE WHERE THERE IS A MARKED CHANGE IN MATERIAL OR PHYSIOGRAPHIC FORM.

(F) "BLUFF" MEANS A BANK OR CLIFF WITH A PRECIPITOUS, STEEPLY SLOPED FACE ADJOINING A BEACH OR A BODY OF WATER.

(G) "BLUFF LINE" MEANS THE POINT OF INFLECTION WHERE THE SLOPE OF THE UPLAND SURFACE CHANGES TO BEGIN ITS DESCENT TO THE BEACH OR SHORELINE.

2. A provision for the annual review of consistency performance by ODNR, with revocation of approval if consistency performance is determined to be unsatisfactory.

If the statement is approved by the Director, ODNR, it shall be signed by each director and made a part of this MOU as Attachment B. When a statement has been signed, no further reviews of subject projects and activities as specified in Sections A-D will be required as long as actions specified in the statement remain consistent.

If ODNR believes that any action undertaken by ODOT under the statement is inconsistent, ODNR will notify ODOT of such concern in writing and outline the reason for the inconsistency determination. ODOT will have 30 days to correct the problem and provide in writing to ODNR what steps it has taken to make the action consistent or explain why the original action is consistent with policies of the OCMP.

ODNR will then notify ODOT either that it will lift its determination of inconsistency or revoke approval of the statement. If the Director, ODNR revokes approval of the statement, ODOT may appeal the decision under the mediation process outlined in Section E of this MOU.

G. <u>Review</u>

Two years after execution of this MOU, the process outlined herein will be reviewed by the parties to the MOU for substance, timeliness, responsiveness and impact on agency workload.

H. <u>Designation of Liaisons</u>

The Coastal Management Administrator is designated to serve as ODNR's liaison for matters involving the Ohio Coastal Management Program and this MOU. The Administrator, Office of Environmental Services, shall serve as ODOT's liaison for these purposes.

The above is mutually agreed between ODNR and ODOT from this date on, or until modified or discontinued by mutual consent, or discontinued unilaterally with a minimum of ninety (90) days advance notice by either party. Obligations of the State are subject to O.R.C. э 126.07.

Donald C. Anderson, Director
Ohio Department of Natural Resources

Jerry Wray, Director
Ohio Department of Transportation

(H) “CALCULATED ACCURACY LIMIT” MEANS THE POTENTIAL ERROR IN RECESSION RATE RESULTING FROM THE LIMIT OF IMAGE RESOLUTION AND MEASUREMENT INACCURACIES AND SHALL BE CALCULATED BY DIVIDING A FIXED ERROR OF FIVE FEET BY THE TIME PERIOD IN YEARS OVER WHICH THE ANNUAL RECESSION RATE IS CALCULATED.

(I) "COASTAL EROSION AREA" MEANS THOSE LAND AREAS ALONG LAKE ERIE ANTICIPATED TO BE LOST DUE TO LAKE ERIE-RELATED EROSION WITHIN A THIRTY-YEAR PERIOD IF NO ADDITIONAL APPROVED EROSION CONTROL MEASURES ARE COMPLETED WITHIN THAT TIME. THESE AREAS INCLUDE LAND LAKEWARD OF THE BASE RECESSION LINE WHERE ANTICIPATED RECESSION DISTANCES ARE GREATER THAN ZERO AND EXTEND LANDWARD FROM THE BASE RECESSION LINE FOR A DISTANCE EQUAL TO THE ANTICIPATED RECESSION DISTANCE. WHERE ANTICIPATED RECESSION DISTANCES ARE EQUAL TO ZERO, COASTAL EROSION AREAS SHALL NOT BE DESIGNATED EITHER LAKEWARD OR LANDWARD OF THE BASE RECESSION LINE.

(J) "DIKE" MEANS ANY ARTIFICIAL BARRIER TOGETHER WITH APPURTENANT WORKS THAT SHALL BE USED EITHER TO:

(1) DIVERT OR RESTRAIN THE FLOW OF A STREAM OR OTHER BODY OF WATER FOR THE PURPOSE OF PROTECTING AN AREA FROM INUNDATION BY FLOOD WATERS; OR

(2) MAINTAIN WATER LEVELS IN THE DIKED AREA FOR THE PURPOSES OF MANAGING A WETLAND.

(K) "DUNE" MEANS A RIDGE OR HILL OF LOOSE, WINDBLOWN SAND, THE CREST OF WHICH TYPICALLY TRENDS PARALLEL TO THE SHORELINE.

(L) "EROSION" MEANS THE LOSS OR DISPLACEMENT OF LAND ALONG THE LAKESHORE DUE TO WAVE ATTACK, ICE SCOUR, MASS WASTING, OR OTHER RELATED EROSION PROCESSES.

(M) “EROSION CONTROL MEASURE” MEANS A STRUCTURE OR ACTIONS SPECIFICALLY DESIGNED TO REDUCE OR CONTROL LAKE ERIE-RELATED EROSION OF THE SHORE. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, GROINS, JETTIES, DIKES, SEAWALLS, REVETMENTS, BULKHEADS, BREAKWATERS AND ARTIFICIALLY NOURISHED SAND AND/OR GRAVEL BEACHES.

(N) "FILL LAND" MEANS ARTIFICIAL LAND MADE BY PLACING SUBSTANTIAL FILL AND ASSOCIATED EROSION CONTROL MEASURES IN LAKE ERIE.

(O) "MASS WASTING" MEANS THE DOWNSLOPE MOVEMENT OF MATERIAL DUE TO GRAVITY. EXAMPLES OF MASS WASTING INCLUDE BUT ARE NOT LIMITED TO ROTATIONAL SLUMPS, DEBRIS FLOWS, BLOCK FALLS, AND ROCK FALLS.

(P) "RECESSION" MEANS THE LANDWARD RETREAT OF THE SHORE DUE TO EROSION.

(Q) "RECESSION DISTANCE" MEANS THE DISTANCE BETWEEN TWO RECESSION LINES. THE RECESSION DISTANCE SHOWS HOW FAR THE "RECESSION LINE" (REFER TO PARAGRAPH (R) OF THIS RULE) RECEDED DURING A GIVEN TIME PERIOD.

(R) "RECESSION LINE" MEANS THE LANDFORM USED FOR MAPPING RECESSION OF THE SHORE, WHICH SHALL INCLUDE BUT IS NOT LIMITED TO:

(1) WHERE THE SHORE IS A BLUFF, THE RECESSION LINE SHALL BE THE BLUFF LINE. EXAMPLES ARE SHOWN IN FIGURE 1 OF THIS RULE.

(2) WHERE THE SHORE IS A SAND SPIT WITH A DUNE OR A BARRIER BEACH WITH A DUNE, THE RECESSION LINE SHALL BE THE TOP OF THE WAVE-CUT FACE IN THE DUNE OR THE CREST OF THE DUNE.

(3) WHERE THE SHORE IS A LOW-LYING SAND SPIT LACKING A DUNE OR A BARRIER BEACH LACKING A DUNE, THE RECESSION LINE SHALL BE THE CREST OF THE SPIT OR BARRIER.

(4) WHERE THE SHORE IS A WETLAND, THE RECESSION LINE SHALL BE THE LAKEWARD LINE OF PERSISTENT EMERGENT VEGETATION.

(5) WHERE THE SHORE IS DIKED, THE RECESSION LINE SHALL BE THE TOP OF THE LAKEWARD-FACING SLOPE OF THE DIKE.

(6) WHERE LOW-LYING WATERFRONT AREAS ARE PROTECTED BY A SEAWALL, BULKHEAD, OR REVETMENT, THE RECESSION LINE SHALL BE THE TOP OF THE LAKEWARD-FACING SLOPE OF THE STRUCTURE.

(S) "SAND SPIT" MEANS A NARROW EMBANKMENT OF LAND COMPOSED OF SAND AND GRAVEL DEPOSITED BY LITTORAL PROCESSES WHICH HAS ONE END ATTACHED TO THE SHORE AND THE OTHER TERMINATING IN OPEN WATER.

(T) "SHORE" MEANS THE LAND BORDERING THE LAKE.

(U) "SHORELINE" MEANS THE LINE OF INTERSECTION OF LAKE ERIE WITH THE BEACH OR SHORE.

(V) "WETLAND" MEANS AN AREA THAT IS INUNDATED OR SATURATED BY SURFACE OR GROUNDWATER AT A FREQUENCY AND DURATION SUFFICIENT TO SUPPORT, AND THAT UNDER NORMAL CIRCUMSTANCES DOES SUPPORT, VEGETATION TYPICALLY ADAPTED FOR LIFE IN SATURATED SOIL CONDITIONS. WETLAND INCLUDES WITHOUT LIMITATION SWAMPS, MARSHES, BOGS, AND FENS.

EFFECTIVE:

CERTIFICATION:
DONALD C. ANDERSON, DIRECTOR
DEPARTMENT OF NATURAL RESOURCES

DATE

PROMULGATED UNDER R.C. CH. 119
RULE AUTHORIZED BY R.C. 1506.02
RULE AMPLIFIES R.C. 1506.02, R.C. 1506.06
PRIOR EFFECTIVE DATE 9/8/91

1501-6-11 DETERMINATION OF ANNUAL RECESSION RATES.

THE PROCESS OF DETERMINING ANNUAL RECESSION RATES SHALL INCLUDE PREPARATION OF RECESSION-LINE BASE MAPS, MEASUREMENT OF RECESSION DISTANCES ON THE RECESSION-LINE MAPS, AND CALCULATION OF ANNUAL RECESSION RATES.

(A) RECESSION-LINE MAPS SHALL BE PREPARED USING THE FOLLOWING PROCEDURE.

(1) BASE MAPS SHALL BE CONSTRUCTED USING THE MOST CURRENTLY AVAILABLE IMAGERY. TYPES OF BASE-MAP IMAGERY MAY INCLUDE, BUT ARE NOT LIMITED TO, AERIAL PHOTOGRAPHS, REMOTE SENSING IMAGERY, DIGITAL DATA, OR SOME COMBINATION THEREOF. CRITERIA USED TO SELECT BASE-MAP IMAGERY SHALL INCLUDE, BUT ARE NOT LIMITED TO, COMPLETE SYNOPTIC COVERAGE OF THE OHIO SHORE WHERE THE SHORE IS CENTRALLY LOCATED ON THE IMAGES, ADEQUATE GEOGRAPHIC REFERENCE POINTS, AND RESOLUTION THAT IS ADEQUATE TO MAP A BASE RECESSION LINE AND IDENTIFY CULTURAL AND PHYSIOGRAPHIC FEATURES ON THE IMAGERY.

(2) THE RESULTING BASE MAPS SHALL BE PRODUCED AT A NOMINAL SCALE OF ONE INCH EQUAL TO TWO HUNDRED FEET; THE SCALE OF THE BASE MAPS SHALL BE VERIFIED WITH FIELD MEASUREMENTS NOT LESS THAN FIVE HUNDRED FEET IN LENGTH, AND THE TRUE SCALE IN FEET SHALL BE NOTED ON EACH INDIVIDUAL BASE MAP.

(3) A BASE RECESSION LINE SHALL BE MAPPED ON THE RECESSION-LINE BASE MAPS AS DESCRIBED IN PARAGRAPH (R) OF RULE 1501-6-10 OF THE ADMINISTRATIVE CODE.

(4) HISTORICAL IMAGERY USED TO PREPARE RECESSION-LINE MAPS SHALL BE SELECTED FROM CHARTS, AERIAL PHOTOGRAPHS, OR OTHER IMAGERY OF THE SHORE WHICH ARE ON FILE AT THE DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGICAL SURVEY. CRITERIA USED TO SELECT THIS IMAGERY FOR RECESSION-LINE MAPPING SHALL INCLUDE BUT ARE NOT LIMITED TO THOSE CRITERIA LISTED IN PARAGRAPH (A)(1)OF THIS RULE. IMAGERY SHALL BE ACQUIRED WITHIN A TIME PERIOD OF NOT LESS THAN TEN YEARS NOR GREATER THAN THIRTY YEARS PRIOR TO THE YEAR THAT THE BASE-MAP IMAGERY WAS ACQUIRED.

(5) RECESSION LINES FROM CHARTS, AERIAL PHOTOGRAPHS, OR

OTHER IMAGERY SHALL BE PROJECTED OR DIGITALLY TRANSFERRED ONTO THE BASE MAPS.

(B) RECESSION DISTANCES SHALL BE MEASURED AT POINTS UNIFORMLY SPACED ALONG THE BASE RECESSION LINE. THE RECESSION DISTANCE AT EACH POINT SHALL BE MEASURED FROM THE BASE RECESSION LINE ALONG A TRANSECT ORIENTED AT A RIGHT ANGLE TO THE GENERAL TREND OF THE BASE RECESSION LINE (FIGURE 1). EACH TRANSECT SHALL BE UNIQUELY IDENTIFIED AND THE MEASURED RECESSION DISTANCE SHALL BE RECORDED AND USED TO CALCULATE THE ANNUAL RECESSION RATE.

(C) FOR EACH TRANSECT, THE ANNUAL RECESSION RATE IN FEET PER YEAR SHALL BE CALCULATED BY DIVIDING THE MEASURED RECESSION DISTANCE BY THE TIME PERIOD IN YEARS BETWEEN THE RECESSION LINES. THE MINIMUM ANNUAL RECESSION RATE SHALL BE ZERO FEET PER YEAR.

EFFECTIVE:

CERTIFICATION:

DONALD C. ANDERSON, DIRECTOR
DEPARTMENT OF NATURAL RESOURCES

DATE

PROMULGATED UNDER R.C. CH. 119
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RULE AMPLIFIES R.C. 1506.02, R.C. 1506.06
PRIOR EFFECTIVE DATE 9/8/91

1501-6-12 <u>DETERMINATION OF ANTICIPATED RECESSION DISTANCES</u>.

THE ANTICIPATED RECESSION DISTANCE IN FEET FOR EACH TRANSECT SHALL BE THE CENTER-WEIGHTED MOVING AVERAGE OF DISTANCES EQUAL TO THIRTY TIMES THE ANNUAL RECESSION RATE IN FEET PER YEAR AS DETERMINED AT FIVE CONSECUTIVE TRANSECTS WHERE: (1) THE DISTANCES FOR THE TWO OUTER TRANSECTS SHALL BE WEIGHTED BY A FACTOR OF ONE; (2) THE DISTANCES FOR THE TWO INNER TRANSECTS SHALL BE WEIGHTED BY A FACTOR OF THREE; AND (3) THE DISTANCE FOR THE CENTER TRANSECT SHALL BE WEIGHTED BY A FACTOR OF FIVE (FIGURE 1). ANTICIPATED RECESSION DISTANCES LESS THAN THIRTY TIMES THE CALCULATED ACCURACY LIMIT SHALL BE EQUAL TO ZERO. IN NO CASE SHALL THE ANTICIPATED RECESSION DISTANCE BE LESS THAN ZERO.

EFFECTIVE:

CERTIFICATION:

DONALD C. ANDERSON, DIRECTOR
DEPARTMENT OF NATURAL RESOURCES

DATE

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1501-6-13 PREPARATION OF COASTAL EROSION AREA MAPS.

COASTAL EROSION AREAS SHALL BE DELINEATED ON COASTAL EROSION AREA MAPS.

(A) WHERE COASTAL EROSION AREAS ARE IDENTIFIED, SUCH AREAS SHALL INCLUDE LAND LAKEWARD OF THE BASE RECESSION LINE AND ALL LAND THAT EXTENDS LANDWARD OF THE BASE RECESSION LINE FOR A DISTANCE EQUAL TO THE ANTICIPATED RECESSION DISTANCE. WHERE ANTICIPATED RECESSION DISTANCES ARE EQUAL TO ZERO, A COASTAL EROSION AREA SHALL NOT BE DESIGNATED, EITHER LAKEWARD OR LANDWARD OF THE BASE RECESSION LINE.

(1) THE LANDWARD BOUNDARY OF A COASTAL EROSION AREA SHALL BE DELINEATED BY PLOTTING ON EACH TRANSECT A POINT LANDWARD FROM THE BASE RECESSION LINE EQUAL TO THE ANTICIPATED RECESSION DISTANCE AS DETERMINED IN RULE 1501-6-12 OF THE ADMINISTRATIVE CODE AND THEN DRAWING STRAIGHT LINES BETWEEN THESE POINTS (FIGURE 1).

(2) WHERE ONE TRANSECT HAS A POSITIVE ANTICIPATED RECESSION DISTANCE AND AN ADJACENT TRANSECT HAS A ZERO ANTICIPATED RECESSION DISTANCE, THE COASTAL EROSION AREA BOUNDARY SHALL BE DELINEATED AS FOLLOWS. A BOUNDARY LINE SHALL BE DRAWN BETWEEN THE POSITIVE ANTICIPATED RECESSION DISTANCE ON THE ONE TRANSECT TO THE BASE RECESSION LINE POSITION ON THE ADJACENT TRANSECT (FIGURE 2). AT THE POINT WHERE THE DISTANCE BETWEEN THE BOUNDARY LINE AND THE BASE RECESSION LINE EQUALS THE CALCULATED ACCURACY LIMIT, THE BOUNDARY LINE SHALL TURN LAKEWARD. THE LAKEWARD EXTENSION OF THE BOUNDARY LINE SHALL EXTEND TO THE SHORELINE AND SHALL BE SPACED PROPORTIONATELY BETWEEN THE TRANSECTS (FIGURE 2).

(B) THE PRELIMINARY IDENTIFICATION OF COASTAL EROSION AREAS SHALL BE SHOWN ON RECESSION-LINE BASE MAPS DESCRIBED IN PARAGRAPH (A) OF RULE 1501-6-11 OF THE ADMINISTRATIVE CODE AS AREAS BOUNDED ON THE LAKEWARD SIDE BY THE SHORELINE AND ON THE LANDWARD SIDE BY A LINE (COASTAL EROSION AREA LINE) DRAWN PURSUANT TO PARAGRAPHS (A)(1) AND (A)(2) OF THIS RULE. THE BASE RECESSION LINE AND THE RECESSION LINE USED TO DETERMINE ANNUAL RECESSION RATES AND ANTICIPATED RECESSION DISTANCES AS PRESCRIBED IN PARAGRAPH (A)(4) OF RULE 1501-6-11 SHALL ALSO BE SHOWN ON THE RECESSION-LINE BASE MAPS (FIGURE 3).

(C) FINAL IDENTIFICATION OF COASTAL EROSION AREAS SHALL BE SHOWN ON THE RECESSION-LINE BASE MAPS DESCRIBED IN PARAGRAPH (A) OF RULE 1501-6-11 OF THE ADMINISTRATIVE CODE AS AREAS BOUNDED ON THE LAKEWARD SIDE BY THE SHORELINE AND ON THE LANDWARD SIDE BY A LINE DRAWN PURSUANT TO PARAGRAPHS (A)(1), (A)(2), AND (B) OF THIS RULE. THIS FINAL IDENTIFICATION SHALL SHOW THE BOUNDARIES OF COASTAL EROSION AREAS AS THEY EXISTED AT THE TIME THE BASE-MAP IMAGERY WAS ACQUIRED. SUBSEQUENT TO THE FINAL IDENTIFICATION, THE LANDWARD EXTENT OF A COASTAL EROSION AREA SHALL BE DETERMINED BY MEASURING THE ANTICIPATED RECESSION DISTANCE FROM THE CURRENT BASE RECESSION LINE DEFINED IN PARAGRAPH (R) OF RULE 1501-6-10. RECESSION RATES AND ANTICIPATED RECESSION DISTANCES SHALL BE PROVIDED BY THE DEPARTMENT OF NATURAL RESOURCES WITH COASTAL EROSION AREA MAPS.

REPLACES: PART OF 1501-6-14

EFFECTIVE:

CERTIFICATION:

DONALD C. ANDERSON, DIRECTOR
DEPARTMENT OF NATURAL RESOURCES

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