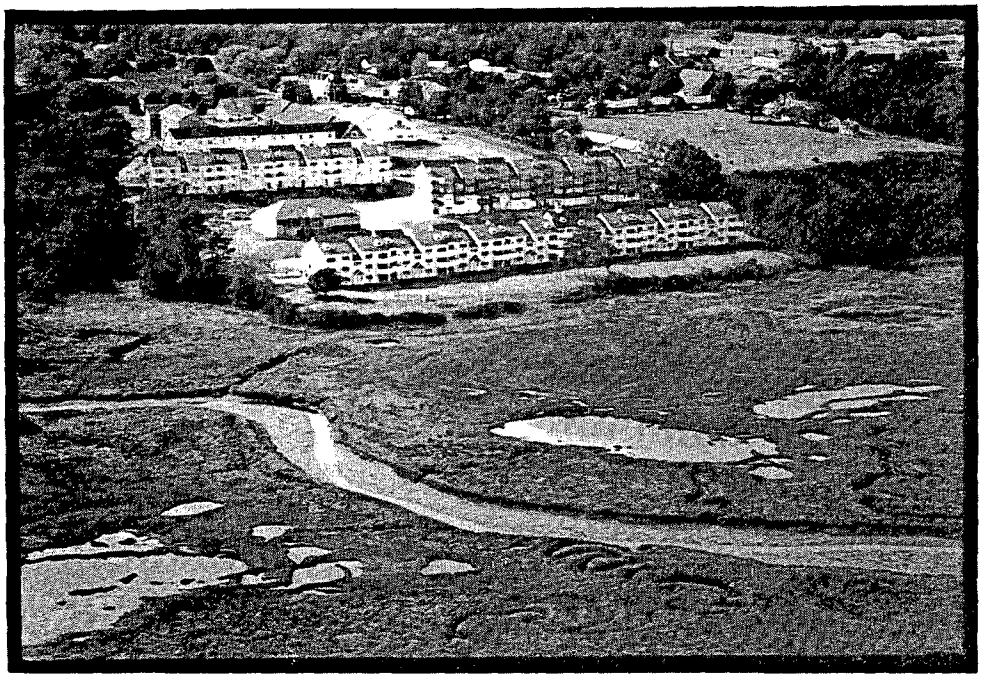
A PROPOSED METHOD FOR COASTAL SCENIC LANDSCAPE ASSESSMENT

With Field Test Results For

Physiographic Region I
Kittery to Scarborough

and

Physiographic Region II
Cape Elizabeth to South Thomaston



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INTRODUCTION

Purpose

The purpose of this study was to develop and field test a method for identifying scenic areas of statewide and regional significance on the Maine coast. The field test covered the coast from Kittery to South Thomaston. Eventually the method will be applied coastwide and the results used as part of the information base to identify Heritage Coastal Areas discussed below. The results will also be available to municipalities, State agencies, conservation organizations and others who have responsibility for land use planning and management in Maine's coastal area.

Heritage Coastal Areas

Heritage Coastal Areas are places where exceptional historic, scenic and natural features occur in close proximity to one another. They are the unique and special parts of the Maine coast. In 1986, the 112th Legislature directed the State Planning Office to identify these areas and work with towns, State agencies, and others in managing them. The Legislature singled out Heritage Coastal Areas for high priority attention in light of the intense development pressures on the coast. While these areas have statewide significance, recognition of the visual importance of the less distinctive parts of the coast is likewise imperative. It would be shortsighted to protect only the most outstanding areas while allowing the roads and shorelines connecting them to be degraded. People must enjoy what they see as they go about their daily lives or travel between special points of interest or they will look elsewhere for a higher quality of life.

Development of the Method

Areas of outstanding scenic beauty are recognized explicitly in several Maine land use laws* and planning documents. Previous efforts to identify scenic areas include the 1965 Maine State Highway Commission report Scenic Roads in Maine; the Department of Conservation's Maine Rivers Study, 1978; and the State Planning Office's Cumulative Impacts of Development in Southern Maine: A Scenic Landscape Assessment of the Mousam River Watershed, 1986.

The method developed for the Mousam River study was adapted from a statewide scenic landscape study conducted by the

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* Subdivision Law, Great Ponds Act, Site Location of Development Act, and Shoreland Zoning.

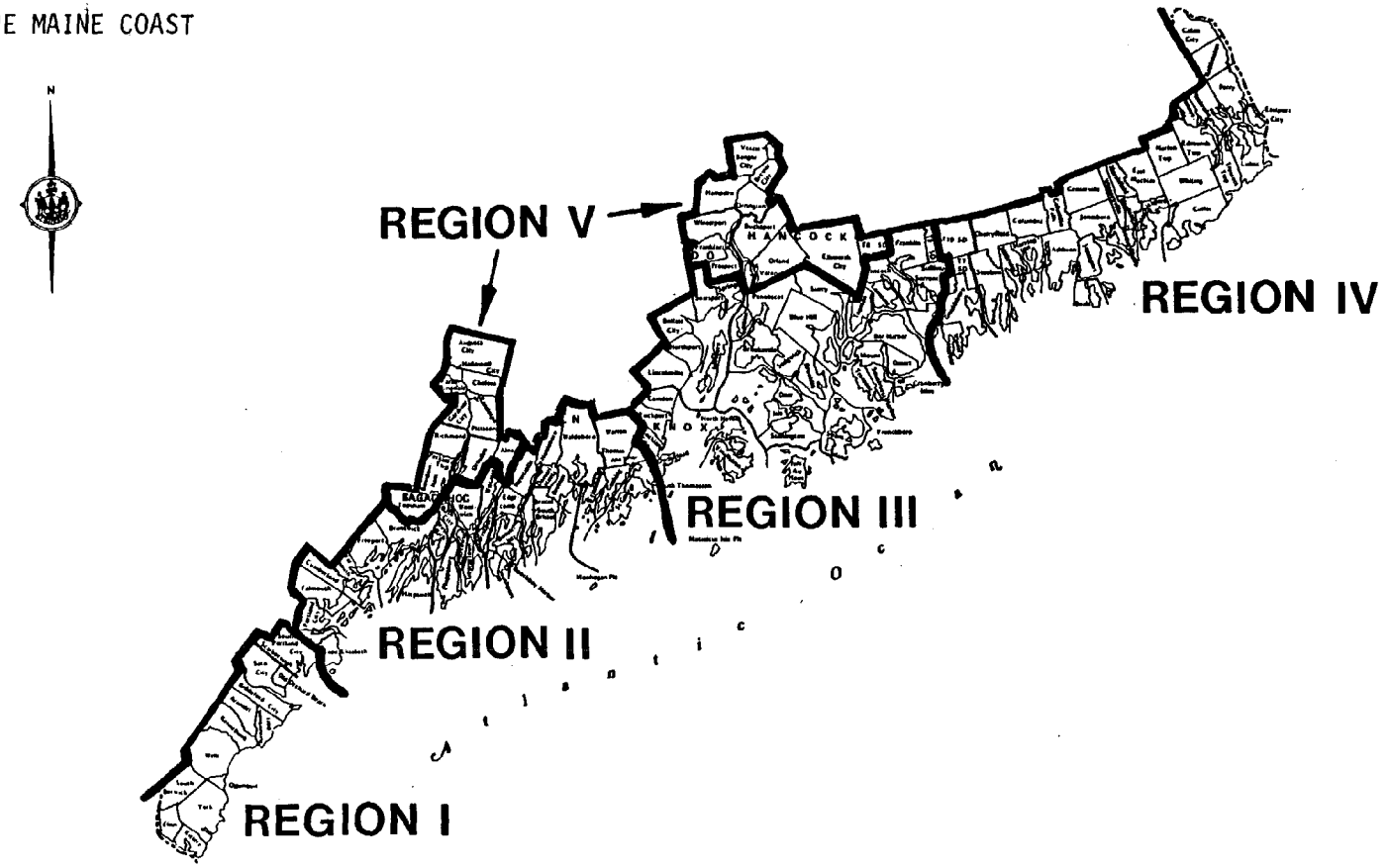
Massachusetts Department of Environmental Management (MDEM, 1982). It was hoped that the Mousam River method could be applied coastwide to assist in the identification of Heritage Coastal Areas, but it turned out to require extensive field work and professional judgement. Consequently, a new approach was developed to eliminate these drawbacks and retain the positive aspects. The revised method described herein is designed to:

1. minimize field work;
2. achieve replicable results by either lay people or professionals;
3. take into account the differences in the landscapes of various parts of the coast; and
4. identify scenic areas of statewide and regional significance as well as the most important views of water as seen from public roadways.

Map 1.

PHYSIOGRAPHIC REGIONS

OF THE MAINE COAST



From The Natural Regions of Maine
by Paul Adamus, 1978.

OVERVIEW OF METHOD

Physiographic Regions

The approach recognizes that visual character varies by physiography (USDA Forest Service, 1974). In coastal Maine there are five physiographic coastal regions: Region I, the southern beaches and estuaries; Region II, the mid-coast with its linear peninsulas and bays; Region III, Penobscot Bay, supporting numerous granitic islands; Region IV, the rocky headlands and bluffs of Downeast Maine; and Region V, the rolling headlands and forested regions along the great tidal rivers and adjacent to the coast (Adamus, 1978). These regions are shown on Map 1.

Summary of Method

The method is designed to be applied separately. Regions I and II were field tested and the results are described in this report.

The method is a "professional approach" rather than a "public" one. This means that it relys upon "experts" in the selection of factors chosen to indicate scenic quality. Public methods rely upon public involvement in making judgements about scenic quality. The rating criteria for this approach, however, have been selected because they have been demonstrated to be important through research based upon public perception studies of what constitutes a scenic landscape.

Eight indicators form the basis of the rating scheme. Where these indicators occur in close proximity with one another or in clumps the area is considered to be of high scenic quality. They include: landform, open land, shoreline configuration, special scenic features, views of water, land use, vegetation, and overall landscape composition and effect. The first five indicators are evaluated by examining data from existing maps; the remaining three are assessed through observation in the field.

The basic steps of the procedure are outlined below:

Step I - Adjust indicators to set minimum standards for the region;

Step II - Rate landform, open land, shoreline configuration, special scenic features, and views of water in the office;

Step III - Rate land use, vegetation and overall composition and effect of the landscape in the field; and

Step IV - Combine the office and field ratings and classify the scenic areas into groups of statewide, regional and local significance.

Rationale for Selecting Indicators

The field of visual assessment has matured considerably over the last fifteen years and there is now substantial information about what people perceive to be scenic in the American landscape. Unfortunately, only one perception study has been conducted for Maine*, so we must infer from studies of other landscapes until more information is available. The eight indicators were selected for this study for the following reasons:

1. **Landform** - Some aspect of landform is nearly always a major factor in expert-based scenic assessment. Past measures have included landform variety (USDA Forest Service, 1974), landform type (Litton, 1968), steep topography (Lewis, 1964), and others. These studies have assumed that as relief or slope increases, scenic value will also increase. This assumption has generally been validated in public preference tests. Zube et. al. (1974) found that along with land-use diversity and naturalism, relative relief was an important predictor of scenic preference. This finding has also been supported in research by Miller (1984), Pitt (1976), Pearce & Walters (1983), and others.

2. **Open Land** - Open land is defined here as existing or abandoned agricultural land or wetland. Open land was inventoried for the scenic assessment for a number of reasons. Land use diversity, especially agricultural and natural land uses, has been shown to be an important predictor of scenic preference (Zube, 1973). Open space in a landscape which is mostly forested, as is Maine, adds visual variety, complexity and interest. In general, variety, complexity, or diversity are all accepted and frequently used indicators in scenic assessments (Litton, 1982; U.S. Forest Service, 1974; Barringer, 1982), and have withstood the scrunity of empirical testing (e.g., Kaplan, Kaplan & Wendt, 1972; Miller, 1984; McCarthy, 1979). Open areas in the Maine coastal landscape also take on a special significance in that they frequently provide visual access to the water.

3. **Shoreline Configuration** - Configuration refers to the amount of irregularity in the shoreline. Shorelines with coves, points, islands, promintories, bays, peninsulas, and other features are considered more configurated than those with straight, uncomplicated shores. Shoreline landscape assessments nearly always include some measure of shoreline configuration as an indicator of scenic value (Harper et. al., 1978; Mann, 1975). There is little direct support for this measure in the research,

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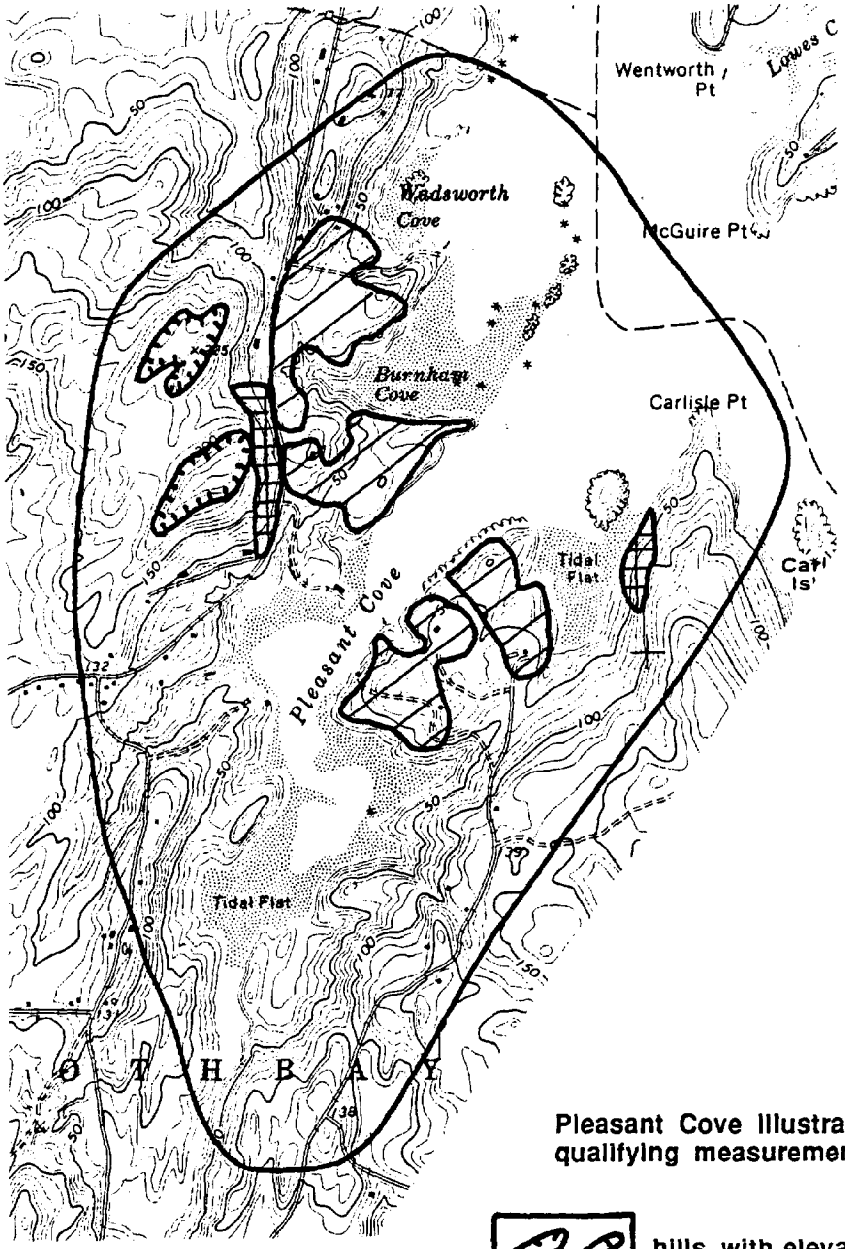
* For Acadia National Park by the National Park Service.

Figure 1.

Qualifying Landform and Open Land for Region II.

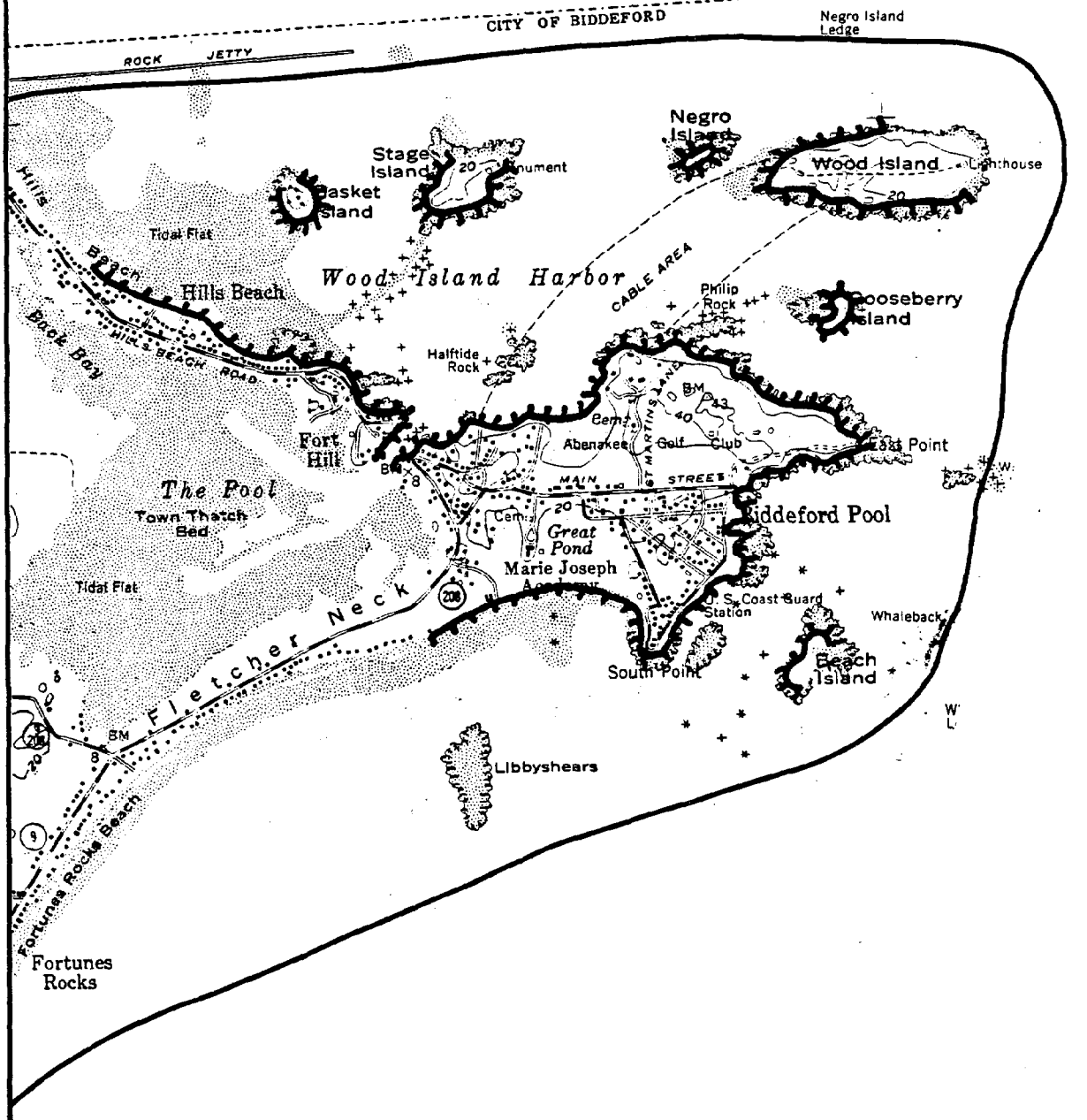


Pleasant Cove illustrates the qualifying measurements for Region II:

- hills with elevations over 200 feet;
- slopes greater than 27%;
- open areas over 25 acres in size.

Figure 2.

Qualifying Shoreline Configuration for Region I.



Biddeford Pool illustrates a highly configurated shoreline in Region I where shorelines, either islands or mainland, within one half mile of one another qualified for inclusion.

but there is considerable evidence of a broader nature. As mentioned previously, complexity is a widely accepted determinant of preference; configuration inceases complexity. Another aspect underlying shoreline configuration is that of enclosure. Those areas showing high configuration tend to give the perceiver a stronger feeling of being enclosed by the landscape. This landscape characteristic has been shown to be related to scenic preference (Ward, 1977; Pearce & Waters, 1983; Gobster, 1986).

4. Special Scenic Features - Special scenic features are natural or cultural features which by their mere presence have a positive influence on people's perception of scenic quality. Examples include beaches, lighthouses, harbors and historic sites, lighthouses (Pemquid, 1986; Sterling, 1935), historic forts (Maine Atlas, 1985), working harbors (Acheson, 1978; DOT 1978 & 1986, Merrill 1986), historic wrecked schooners (The Maine Atlas, 1985), and beaches (Duffy 1986, Maine Geological Survey, 1986). Expert-based scenic shoreland assessments often include cultural and natural features of this type in their checklist criteria (Harper, et. al. 1978; Lewis, 1963). There is evidence that cultural features hold symbolic meaning for society and influence public perceptions of the visual quality of an area (Anderson 1981). There is also considerable evidence that shows beaches are a highly preferred type of shoreland scenery. In Zube & McLaughlin's Virgin Island Study (1978) sand beaches ranked highest over 15 coastal types. Studies by Palmer (1978) in Massachusetts and Banerjee and Gollub (1976) in California agree.

5. Views of Water from Major Roads - It is generally accepted that the presence of water can be a powerful predictor of scenic preference (Kaplan, 1977; Litton, et. al. 1971). Some researchers have shown that view quality can depend on specific characteristics of the view in relation to the observer. Litton (1972) suggests that two of these characteristics include the position of the observer in relation to the focus of a view, and the distance one can see in a view. "Superior" views, views in which the observer is looking down upon the landscape, and views that one can see for a long distance, often have higher scenic value than those that are blocked or partially enclosed. Federal land management agencies have developed methods for visual resource evaluation relating to how long a view lasts and the size of the resource seen. They contend that lands which more people see for long periods of time and during periods of recreational activity are more aesthetically important than those which few people see or are seen for only short periods of time. Lands with the highest sensitivity include areas seen from major roads for long duration. By this same rationale, large water bodies have higher value than smaller ones because more people see them (USDA Forest Service 1974).

6. **Land Use** - Land uses encompass the changes people make to the landscape. Perception studies conducted under the auspices of the USDA Soil Conservation Service for towns in Massachusetts (Dominie, 1976; Palmer, 1978; and USDA SCS, 1978) identify many cultural modifications of the environment that either detract or contribute to scenic quality. Pastoral, symbolic features, and traditional uses, are positive components while landscape scars and obtrusive structures are detractors, for instance. Land use compatibility, the degree to which development is visually unified with its setting, also has a positive influence on perceptions (Nassauer, 1978). Overall condition is a measure of how well the landscape is cared for.

7. **Vegetation** - Visually interesting or functional vegetation is frequently included in visual assessments. The presence of vegetation used for screening and softening the built environment has been documented as a positive influence on perceptions (Palmer, 1978). Other research has shown that forest and field edges, agricultural patterns and manicured landscapes are also positive predictors of scenic quality (Zube, Pitt and Anderson, 1974).

8. **Landscape Composition and Effect** - The overall effect of the landscape is important as well. The better the coherence and ease with which a landscape and its parts are understood (Kaplan R., 1975), the higher the mystery (Kaplan R., 1975) and land use diversity (Zube, 1973), and the greater the degree of naturalism (Zube, 1973; Kaplan et. al., 1972), the more scenic an area is likely to be perceived. Roads that change elevation are also considered more scenic (Palmer, 1978).

Limitations of the Method

A few limitations of the method exist which should be noted. As mentioned earlier, it is based upon scenic indicators selected by resource professionals. There is evidence in the literature that such "expert" approaches are not always as reliable as those studies where public perceptions about the landscape in question are examined. As a check, however, the results for Region I were compared with the sites identified in the Mousam River Watershed study mentioned earlier. The Mousam study was conducted by professionals, too, but the results were scrutinized through public review and found in accord with local opinions. Region I results coincided well with the areas identified in the earlier study. It would be advisable to confirm the results from other regions as well through a public perception study. (A photographic mail survey is recommended rather than public meetings. We learned in the Mousam study that advertised public meetings are not acceptable to people as the proper arena to discuss scenic areas. They fear, and with some justification, that publicity will do more to attract development than protect these areas. Towns are slower to put protective measures in place than developers are to take advantage of opportunities.)

A further limitation of the method is that it is biased in favor of the natural over the built landscape. Only those areas that rise to the top during the office analysis are field checked. They are considered to have "potential" for scenic distinction based upon indicators which, with the exception of special features and open land, relate to the natural characteristics of the landscape. Consequently, there may be areas, particularly villages, that are scenic by virtue of their architectural characteristics and development patterns, but go unidentified by this assessment method. This may not be a serious detriment because information on historic areas will be combined with the scenic results and natural areas in a later step of the Heritage Coastal Areas designation process. However, the question of whether a visual "townscape" analysis is needed for Maine's coastal settlements should be further explored.

At least one other limitation should be noted. The method is also biased in favor of major public roads, those designated as medium or heavily traveled by the Maine Department of Transportation. The assumption was that these roads are most important because a great many people use them. While this is an important point, it may cause some "public" areas not on major roads with impressive views of the water to be omitted or others not to receive the rating they deserve. (For example, views of the water from Mt. Agamenticus were not identified during Step I because they were not on a major road. Two special places in Region II were discovered during field work, but not added to avoid inconsistency.) Areas identified during the Coastal Heritage identification process on the basis of natural and historic rather than scenic merits should be field checked to identify special views and other scenic qualities.

The scenic assessment results should be shared with people who know the region well to assure that no places of significance are overlooked because of the public road bias. Such areas may also be discovered during field reconnaisance. Flexibility needs to be used to assure they receive the merit they deserve.

Finally, the field reconnaisance step in the procedure is biased in favor of what can be seen from land rather than the water. This bias can be eliminated by the use of "boat checks," if funding allows. A less expensive method may be to have a trained visual specialist review the results of the office rating to identify the areas with greatest potential for scenic value from the water. This will narrow down the sites to be boat checked. (Experience with Regions I and II showed that field personnel without visual training have difficulty visualizing scenic potential from maps.)

DETAILED METHOD

Step I - Adjust indicators to set minimum standards for the region.

The first step is to characterize the visual setting of the region to assure that the indicators fit. Draft characterizations for Maine's coastal regions are included in Appendix A.

In order to determine at what point a landscape feature becomes an indicator of scenic value, minimum standards should be defined. For the first three indicators -- landform, open land and shoreline configuration -- qualifying measurements should be determined after surveying the range of each indicator throughout the region as described below.

In this study, landform is broken down into two components: elevation and slope. See Figure 1. Elevation is the height of land above sea level. To determine at what point elevation became scenically important in Region I, the range of elevations was surveyed. It was found that the highest point was 671' but most ridges were between one hundred and three hundred feet. Two hundred feet was chosen as the point at which elevation was high enough in Region I to have scenic value from a regional perspective because such hills were relatively uncommon and usually stood out in the landscape. Slope is a measure of relative elevation. In this study the change in elevation between the bottoms and tops of hills was measured using the contour lines from a USGS topographic map and a small gauge. In Region I, a relatively flat coastal plain, 20% slopes were set as the minimum, while 27% was used for Region II because steeper slopes are more prevalent.

For open land, the range of parcel sizes should be identified using an overlay grid or planimeter and a cut-off size established to include the upper end of the range. See Figure 1.

The range of shoreline configuration should also be identified. An example of a highly configurated shoreline is shown in Figure 2. High configuration is determined using the method described in Figure 3.

The fourth indicator, special scenic features, is a category where the indicators (such as lighthouses) are either present or absent and thus no minimum standard is needed.

For the fifth indicator, views of water from major public roads, it was assumed that every view of water has some potential scenic value. Five view components were included and rated for Regions I and II: duration of view, observer elevation, viewing distance, type of water and visual interest. See Table 1 and Figure 4. The view rating system may need to be adjusted to account for regional variation. Research discovered after the

Table 1.

VIEWS OF WATER FROM MAJOR ROADS

Region I
Ranking System for Potential View Quality

View Component	1 point	2 points	4 points
1. Duration of View (how long the view lasts)	less than 2/10 of a mile	2/10 to 1/2 of a mile or numerous short views	greater than 1/2 of a mile
2. Elevation of the Point of Observation (how high the road is above the water)	20 to 39 feet	40 to 59 feet	60 feet and over
3. Viewing Distance (how far one can see)	less than 1/4 mile	1/4 to 1 mile	greater than 1 mile
4. Type of Water (the type and diversity of water features)	1 point - small body of fresh water - only wetlands, fresh or salt (small areas of open water such as meanders or pools are okay) - always enclosed horizon	3 points - large body of fresh or salt water - enclosure complete or completely open horizon - no associated wetlands	5 points - large body of water with - salt marsh vegetation *and/or* - combination of enclosed and open horizons
5. Visual Interest (an overall rating of topography, shoreline configuration and special scenic features)	1 point - a change in relative relief up to 40 feet - straight shoreline - no point of special visual interest	2 points - a change in relative relief between 40 and 60 feet - some shoreline configuration - no point of special visual interest	4 points - a change in relative relief of over 60 feet - shoreline that includes several islands or configurated coves and points - one or more points of special visual interest

Table 2.

VIEWS OF WATER FROM MAJOR ROADS

Region II
Ranking System for Potential View Quality

View Component			
1. Duration of View (how long the view lasts)	1 point less than 2/10 of a mile	2 points 2/10 to 1/2 of a mile or numerous short views	4 points greater than 1/2 of a mile
2. Elevation of the Point of Observation (how high the observer is above the water)	1 point 20 to 49 feet	2 points 50 to 99 feet	4 points 100 feet and over
3. Viewing Distance (how far one can see)	1 point less than 1/4 mile	2 points 1/4 to 1 mile	4 points greater than 1 mile
4. Type of Water (the type and diversity of water features)	1 point - small body of fresh water - only wetlands, fresh or salt (small areas of open water such as meanders or pools are okay) - always enclosed horizon	3 points - large body of fresh or salt water - enclosure complete or completely open horizon - no associated wetlands	5 points - large body of water with - salt marsh vegetation and/or - combination of enclosed and open horizons
5. Visual Interest (an overall rating of topography, shoreline configuration and special scenic features)	1 point - a change in relative relief up to 100 feet - shoreline is of low configuration - no point of special visual interest	2 points - a change in relative relief between 100 and 200 feet - shoreline is of medium configuration - no point of special visual interest	4 points - a change in relative relief of over 200 feet - shoreline is of high configuration - one or more points of visual interest

field test was completed also bears evidence that a sixth view component should be added for subsequent regions to account for the proximity of the road to the water. Two instances should receive higher points: close proximity of the road to the water and when the viewer is superior and the water is in the midground* (Smardon, 1984).

For the final three indicators: land use, vegetation, and landscape composition and effect indicators, the checklist described in Step 3 should be reviewed and adapted to account for the unique character of the region as described in Appendix A. A reconnaissance of the area may be necessary at this point if the researchers are unfamiliar with the region.

Step II - Rate landform, open land, configuration, special features, and views.

The office analysis is intended to give a general indication fairly quickly and with relatively little expense of the parts of a region that have the greatest potential for high scenic quality. The procedure consists of four tasks: compiling and mapping data, identifying assemblages, assigning preliminary boundaries and ranking each area.

Task 1 - Compile data and map indicators. The minimum standards for the indicators should be interpreted from maps or aerial photos and transferred onto overlays in a manner that provides a permanent record. For this field test, USGS 7.5 minute topographic maps and the most recent 1:40,000 black and white aerial photographs (1980) were used.

Task 2 - Identify assemblages. After the indicators are mapped, an analysis of their distribution is possible through visual inspection. Concentrations of indicators should be identified and criteria developed to decide which ones qualify as potential scenic areas.

The minimum number of overlapping indicators required for the area's consideration as a potential scenic area will vary by region. In Region I, for example, there only had to be two or more indicators, while in Region II the minimum was set at three. These decisions were based upon the overall density of indicators. In Region I, there weren't any areas where five

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* Midground is considered 1/4-1/2 to 3-5 miles distant.

indicators were present. Assemblages of two or more indicators produced only 33 potential scenic areas. In Region II, however, the density of indicators was much higher. There were eight areas where all five indicators were present and sixty-six where three or more indicators overlapped. In both regions, areas with less than the minimum number of indicators were included only if there was a single indicator of "exceptional" quality. A high quality water view or extra steep slope or high elevation was considered "exceptional". This added seven and six areas to Regions I and II respectively.

To be considered an assemblage, the scenic indicators had to be within "close proximity" where together they had a collective effect. This did not necessarily require that they occur directly on top of one another, although views and open areas usually did for obvious reasons. More commonly, one indicator overlapped with only a portion of a second. (This is often the case with shoreline configuration). In these instances professional judgement must be used and the collective effect taken into account. The area of overlap should definitely be included, but not necessarily for example the additional mile of shoreline configuration that has no other indicator nearby.

A more difficult question arises in determining at what point neighboring smaller assemblages should be grouped together. This, again, is where professional judgement should be used. For the field test, it often made sense to group them together if they occurred along a common landscape feature such as a river, lake, island, peninsula or ridgeline, and if the smaller groupings together had a larger collective effect. A second factor justifying the clumping of smaller groups was a viewshed. (Viewshed is defined as everything the viewer sees from a specific viewing point; it includes fore, middle and background). This often was the case with areas along the shore. The point on the road from which one has access to the view might not overlap with another indicator but a second indicator is often within the viewshed. For example, a road along the shore might provide a view of an open area across the cove and some shoreline configuration (an island or point) further out. For all practical reasons these indicators "overlap" because they are in the viewshed.

As a result, however, some of the areas became very large. At this point, to make them manageable for presentation and field work, it became necessary to break up some of the larger ones. For example, the Kennebec River corridor from Bath to Small Point was divided into five sections, although they all focus on the river and have a collective effect.

Task 3 - Assign Preliminary Boundaries. After an assemblage or potential scenic area is identified its boundaries should be defined. The boundaries at this point are very general. Their purpose is to broadly define an area that deserves field evaluation. They are not to be interpreted as final or specific.

Each area should be assigned a unique code. The first variable should identify the physiographic region where the area is found, (Region I = RI, Region II - RII). The next two letters reflect the town where the area is found (see Appendix B for a listing of towns and suggested abbreviations). Often an area will include more than one town. If this is the case, the town which includes the largest percent of the area should be used. The last two numbers are a discrete number assigned consecutively to each area. These consecutive numbers begin anew in each town.

Task 4 - Rank Each Area. Each area should be assigned an overall score indicating the potential that the natural and special features in the area have for contributing to scenic quality. For elevation, slope and open land, when an indicator occurs at least once, the area should receive 5 points for each type* of indicator present. Each special feature should contribute 5 points to an area; and each water view should receive points based upon potential: high 5 points, medium 3 points, and low 1 point.

The indicators should be tallied up to provide a scenic rank for each area. When all areas have been ranked, the ones with the highest scores can be considered to have greatest potential for being scenic.

Step III - Rate land use, vegetation and landscape composition and effect.

Knowing the scenic potential of each area, the results should now be verified and the three remaining indicators, land use, vegetation and overall landscape composition and effect, evaluated in the field. Again, there are four tasks: preparing a field book, rating each area, documenting each area, and finalizing the boundaries.

Task I - Prepare field book. A field book should be prepared in advance containing an index map showing the locations of the potential scenic areas in the region, a topographic map for each area showing the locations of the office indicators and the preliminary boundaries; and a field form (Figure 5) opposite each map for verifying the office results and evaluating the last three indicators. The book should include a table of content with page numbers. The area maps need not be in final form at this stage as they often require revision after the site visit.

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* Not each occurrence, although such an approach should be given further consideration before the next region is undertaken.

Task 2 - Visit and rate each area. Two people, a driver and a navigator/recorder, should visit each site, driving along major public roads to gain an overall impression of the area. Unfortunately, limited resources did not allow areas in Regions I and II to be field checked from the water. Priority was given to the roads because more people see the Coast from their cars than from boats.

The results of the office evaluation should be checked and the presence and contribution of the water views and other office indicators confirmed and recorded on the field form and map. Be very specific about what has changed, ie., "open areas no longer present" or "3 high views and 1 low changed to medium."

The primary task is to rate the land use, vegetation and landscape composition of each area. As the area is explored, the occurrence of each positive and negative component observed should be tallied on pages 2-4 of the field form. After viewing the entire area the team should assign an overall rank for each of the three indicators, as shown on page 1 of the form, based upon the results. For land use, an area should be assigned a higher rating if positive components dominate over the negative ones. For vegetation and landscape composition and effect, the rating should be based upon the occurrence and relative prominence of the positive components listed on the form.

Task 3 - Document each area with photographs. Photographs should be taken to document important views and noteworthy features (either positive or negative) of each area. Each slide should be labeled and filed with the study results for the region.

Task 4 - Finalize boundaries. Finally, boundaries should be adjusted to reflect the findings of the site visit. Areas that have been developed inharmoniously so that they no longer are scenic, and those where the office information was determined invalid, should be eliminated from the study. Sometimes this will only be a portion of an area, if at all. In instances where the visual unity and quality of the area extend beyond the preliminary boundaries, new boundaries should be designated. Completely new areas may be discovered in the field. These should only be added to the assessment with caution.

Step IV - Combine ratings and classify areas into groups of statewide, regional and local significance.

The final step is to combine the ratings for all eight indicators. The office rating should be adjusted based upon the field check for accuracy and boundary changes. The point rating should be plotted to identify clusters of sites with relatively equal significance. If clear separations between clusters do not exist, cut-offs for the groups should be determined using professional judgement based upon familiarity with the region. The areas with the highest points can be considered of statewide significance. Those areas with moderate ratings and those which

cross town boundaries can be considered of regional significance. The lowest group should be evaluated to determine which are of local significance or appear not to have any distinctive quality, even at the local level. Once all five regions have been completed, the statewide, regional and local relationships should be compared and adjusted as necessary.

The results for each region should be shared with (at least) several individuals who are familiar with the area. The reviewers should be asked if they concur with results and to identify noteworthy areas that were omitted.

FIELD TEST RESULTS

Region I - The South Coast

Regional Description

Region I is the southern most coastal region. It extends from Gerrish Island in Kittery to the Spurwink River in Scarborough. The following towns are included: South Berwick, Eliot, Kittery, York, Ogunquit, Wells, Kennebunk, Kennebunkport, Arundel, Biddeford, Saco, Old Orchard Beach and Scarborough.

The shoreline in Region I is relatively straight due to the orientation of the bedrock geology. Sandy barrier beaches are common, behind which large saltwater estuaries often occur. Islands are rare. The seaward topographic slope is very gradual, and in general relief and elevation throughout the region is lower than in other coastal regions. The exception to this is Mt. Agamenticus with an elevation of 671 feet. Oak forests dominate in the southern third of the region, while hardwoods dominated by white pine characterize the northern two thirds. Coastal spruce-fir is absent. All of these landscape characteristics are more typical of coastal New Hampshire and Massachusetts (Adamus, 1976).

Culturally, this is the most densely populated region along the Maine coast. Much of the development that is found directly on the shoreline is seasonal such as second homes and resort development. Inland the land use is mostly rural farm and forest although it too is becoming increasingly more developed. Together, the entire region is experiencing greater growth and development pressure than any other coastal region. Residential sprawl and strip development along Route One are extensive. Traditional land uses such as fishing and farming are becoming less prevalent.

Regional Criteria - minimum standards

The minimum standards for inclusion of each indicator were based upon the range of physiographic variation existing in each region.

1. Topography

For Region I all land over 200 feet and all slopes that rose 100 feet in 500 horizontal feet (20% slope) were included. Topography of exceptional quality included elevations over 400 feet.

2. Open land

Two kinds of open land were highlighted: agricultural land (farms, fields, and pastures) and unforested wetlands. All open agricultural land and wetlands over 25 acres were included.

3. Shoreline configuration

Shoreline configuration falls into two categories: offshore islands and mainland shore configuration. In Region I islands are rare and the shore is usually straight. All islands within 1/2 mile of other islands or the mainland were included. Mainland shore that was within a visual half mile of a peninsula, point cove or island, was considered configurated.

4. Special features

Special features for Region I included lighthouses, harbors where traditional marine activities still operate*, and sand beaches, the only natural feature to fall into this category. The following sources of data were consulted: lighthouses (Pemquid, 1986; Sterling, 1935), historic forts (Maine Atlas, 1985), historic wrecked schooners (The Maine Atlas, 1985) and beaches (Duffy 1986, Maine Geological Survey, 1986). In Region I sand beaches are common and most of them have been built upon. Since the degree of naturalism has a positive influence on perception, only those beaches with little or no development were highlighted. A threshold of 10 structures or less per mile of beach (as interpreted from 1980 aerial photos) was used as the criterion for inclusion. Only beaches over 1/4 of a mile long or more were considered.

5. Views of water from major roads

Five criteria were used to evaluate water views from all medium and heavily traveled roads. The frequency of view scores was examined and three quality groups were identified based upon the clustering of the ratings. Each view was evaluated using the criteria detailed on Table 1. The highest possible score is 21 and the lowest 4. Scores of 12 and over are ranked high scenic quality, scores 6 to 11 are medium, and 5 and below are low.

Results

The Office phase was completed in 1986 and site visits to 40 areas were made during the spring and summer of 1987. (See Figure 5) The combined results of both the office and field ratings for Region I are shown in Table 3. Twenty six areas made the final cut. Five were deemed of state significance, thirteen of regional significance, and eight of local significance.

The office rating was not adjusted for accuracy because of inconsistant recording in the field. A prototype field form was used in Region I; it did not include landscape composition and effect and was less complete than the version subsequently used in Region II. (See Figure 6). Site visits to the 40 areas took about twenty team days to complete.

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* Recreational harbors should be included as well for subsequent regions.

REGION II - THE MID-COAST

Regional Description

Region II is the mid-coast area. It extends from Cape Elizabeth to South Thomaston and includes Casco Bay and Harpswell Sound as well as the New Meadows, Kennebec, Sheepscot, Damariscotta and St. George Rivers. The towns from south to north inlcude: Cape Elizabeth, South Portland, Portland, Falmouth, Cumberland, Yarmouth, Freeport, Brunswick, Harpswell, West Bath, Bath, Woolwich, Phippsburg, Arrowsic, Georgetown, Westport, Wiscasset, Edgecomb, Boothbay, Boothbay Harbor, Southport, South Bristol, Bristol, Bremen, Waldoboro, Friendship, Cushing, St. George, and South Thomaston.

The mid-coast area is best characterized by its highly configurated shoreline. Islands, inlets, coves, peninsulas and bays are numerous. This is largely due to the northwest/ southwest trending bedrock. In general, elevation and relief are slightly greater in Region II than Region I. Visually this is most significant near the shore where the relief creates ridges over 200 ft. along several peninsulas. Other characteristics of the mid-coast area are the dozens of tidal rivers and saltmarsh estuaries. These estuaries are not as individually extensive as those found in Region I, but there are more of them. The region is predominantly forested, with wetlands and farmland providing the only open areas. Coastal spruce-fir is widespread on offshore islands but occurs only sparsely on the mainland. More prevalent is the mixed hardwood and white pine forest (Adamus, 1978).

The Portland area is prospering and much new residential and commercial development is occuring. Traditionally, fishing and ship building were strong components of the local economy. This is still true today although tourism and retail businesses are equally if not more important. Like Region I, Region II is facing increased growth and development pressure. The tips of the peninsulas attract tourists and recreationists.

Regional Criteria

1. Topography

In Region II elevations over 200 feet and slopes (relative elevations) that rise 80 feet in 300 horizontal feet (27% slope) were the minimum standard for inclusion. Exceptional topography includes elevations over 400 feet.

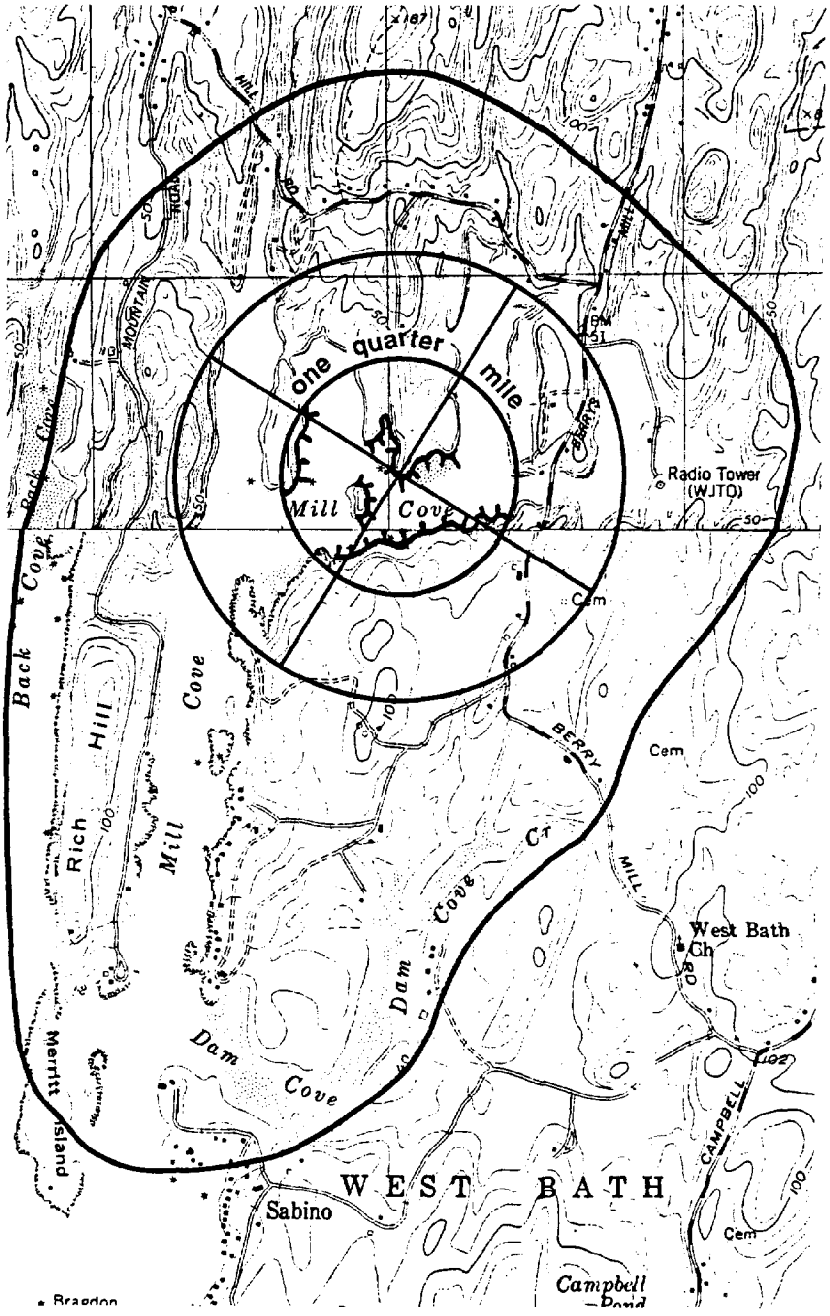
2. Open areas

Open agricultural land and wetlands over 25 acres were included.

Figure 3.

Configuration

Configuration was measured using a 360° compasslike wheel. For example, in Region II a one quarter mile visual distance from one point of shoreline to another was determined significant. The center of the wheel is moved along the shore. If another shoreline enters into the one quarter mile circle radius and is visible to the first point of shoreline, it is designated with a graphic symbol.



3. Shoreline Configuration

In Region II the shoreline is very configurated. In order to determine the areas of highest configuration, a compass wheel (360 degrees) was drafted with a radius of one quarter mile. When the center of this wheel is placed at any point along the shore, it can be determined if any other shoreline is visable across the water and within one quarter mile. If so, it was considered a configurated shoreline.

4. Special Features

Scenic features for Region II include lighthouses, historic shipwrecks, historic forts, harbors where traditional marine activities still operate*, and sandy beaches. Because they are so rare in Region II, all sandy beaches over 2/10 mile long were included despite beachside development. The following data sources were consulted: lighthouses (Pemquid, 1986; Sterling, 1935), historic forts (Maine Atlas, 1985), working harbors (Acheson, 1978; DOT 1978 & 1986, Merrill 1986), historic wrecked schooners (Maine Atlas, 1985), and beaches (Duffy 1986, Maine Geological Survey, 1986).

5. Views of Water from Major Roads

Five criteria were used to evaluate water views from all medium and heavy duty roads. Each view was assigned a number based upon an evaluation of the criteria detailed in Table 2. The highest possible score is 21 and the lowest 4. Views receiving scores of 14 and over are high. Views with scores between 8 and 13 are medium. Views with scores 7 and below are low.

Results

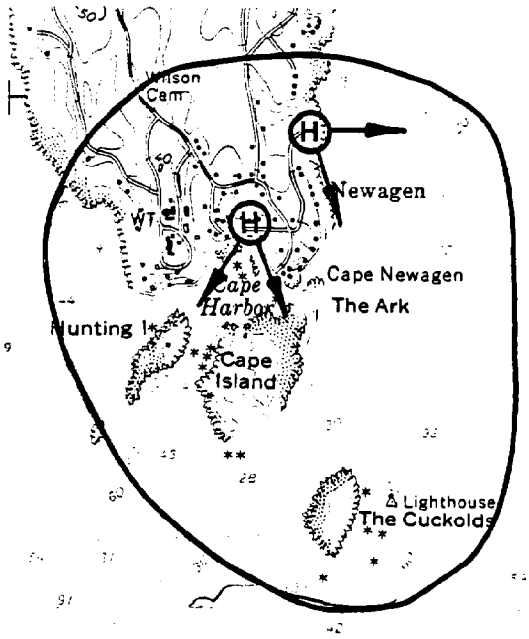
The office phase was completed in 1986 and field visits were made during the summer of 1987. Site visits to 72 areas took about thirty days to complete. The combined results of both the office and field ratings for Region II are shown on Table 4.

Adequacy of the Results

The results should be shared with people familiar with each region as a check against adequacy. It has already been discovered that at least one important area was inadvertantly left out -- the Casco Bay Islands. While there were not many multiple occurrences of indicators on the islands, the high configuration of the island complex is an exceptional indicator in itself. This area should be reexamined for consideration.

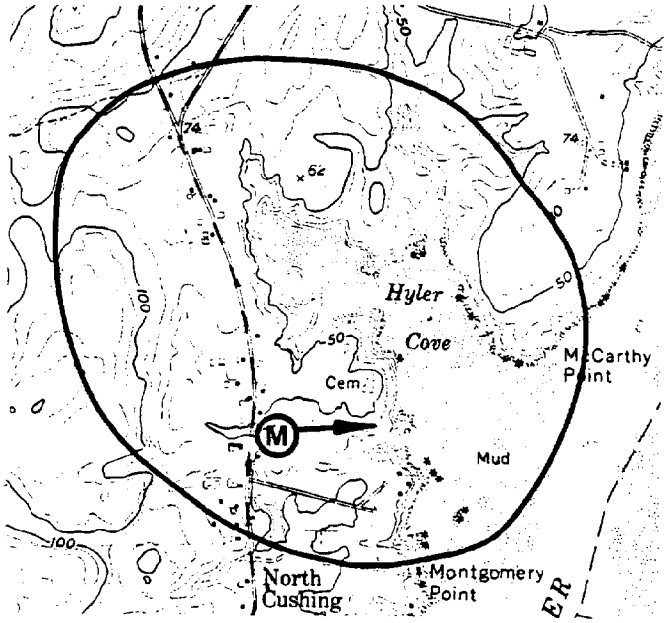
Figure 4.

Rating Views of Water.



High

An example of high value view: Duration of view is two tenths of a mile or less (1 point); elevation of point of observation is twenty feet (1 point); viewing distance is over one mile to the ocean horizon (4 points); there is a combination of open and enclosed horizons, with a large body of water (5 points), and the Cuckolds Lighthouse is a point of special interest (4 points). The total score is 15 points.

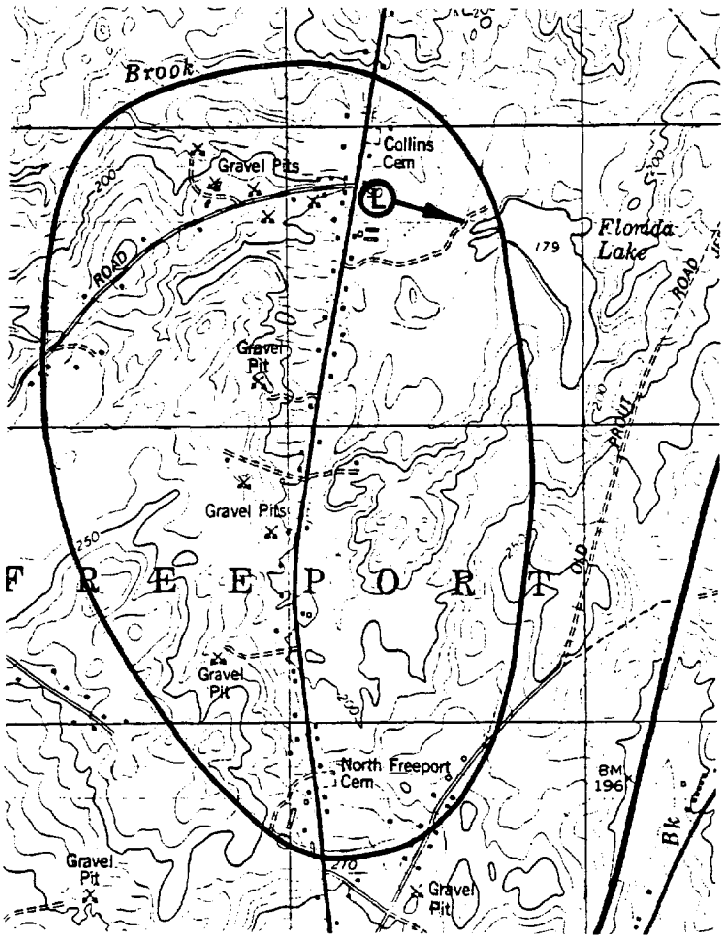


Medium

An example of a medium value view: Duration of view is two tenths to one half of a mile (2points); the observation point is fifty feet above the view (2 points); the viewing distance is over one mile (4 points); view is of a large body of water with complete enclosure (3 points); and there is no point of special visual interest (2 points). The total score is 13 points.

Figure 4.

Rating Views of Water: cont.



Low

An example of a low value view: Duration of view is less than two tenths of a mile (1 point); there is no elevation above the view (no points); viewing distance is less than on quarter of a mile (1 point); the water is a small pond (1 point); and there is not point of special visual interest (1 point). Total score is 4 points.

STEP 2 - COASTAL SCENIC LANDSCAPE ASSESSMENT

Field Inventory Form

Scenic Area _____ USGS Quads _____
Team Members _____
Date _____ Photographs _____
Wheather _____ _____

Positive Components	Comments
A. Landscape Composition and Effect	
1. Open, Rolling Topography	
2. Maine Sense of Place	
3. Overall Condition High	
4. High Diversity	
5. Other	
B. Vegetation	
1. Park/Landscaped	
2. Agricultural Pattern (orchard, plowing)	
3. Field and Forest Edge	
4. Woodland or Tree Pattern (mixed species)	
5. Mass of Wildflowers or Ferns	
6. Tree Canopied Road	
7. Stately Sugar Maples Lining Road	
8. Other	
C. Structures	
1. Pictureque Farmstead	
2. Traditional Residential	
2. Other Historic Structure	
3. Other Unusual Structures	
4. Interesting Bridges	
5. Stone Wall or Wooden Fence	
6. Old Cemetery	
7. Traditional Church	
8. Distant Village Skyline or Edge	
9. Statue, Fountain, Roadside Art	
10. Other	

Negative Components	Comments
A. Landscape Scars	
1. Lunbering Scar or Slash	
2. Erosion	
3. Gravel or Sand Mining	
4. Utility Line, Corridor or Substation	
5. Angular Road Cut or Fill	
6. Other	
B. Structures	
1. Strip Development	
2. Dilapidated Building	
3. Incompatable Bldg in Town (style,material,lot size)	
4. Incompatable Rural Bldg (non-farm,non-residential)	
5. Gas Station or Auto Repair Shop	
6. Outdoor Auto Sales or Large Parking Lot	
7. Junkyard, Dump, Landfill	
8. Storage Tanks	
9. Obtrusive Signage (size,too many,flashing)	
10. Dilapidated Fence or Wall	
11. Incompatile Fence or Wall	
12. Other	
C. Other	
1. Litter	
2. Heavy Traffic	
3. Polluted Water	
4. Structures Blocking Views	
5. Other	

Figure 5: Field Form for Region I

NEGATIVE COMPONENTS* COMMENTS

A. Landscape Scars

1. Lumbering clearcut or extensive slash_____
2. Erosion_____
3. Gravel or sand mining_____
4. Utility corridor or substation in foreground or on ridge line or perpendicular to hills_____
5. Angular road cut or fill_____
6. Other_____

B. Structures

1. Strip development_____
2. Dilapidated building_____
3. Incompatible building in town (style, material, size,etc.)_____
4. Incompatible rural building (non-farm, non-residential)_____
5. Gas station or auto repair shop_____
6. Outdoor auto sales or large parking lot_____
7. Junkyard, dump, landfill_____
8. Storage tanks_____
9. Obtrusive signage(size, too many, flashing)_____
10. Dilapidated or discordant fence or wall_____
11. Other_____

C. Other

1. Litter_____
2. Heavy traffic_____
3. Polluted water_____
4. Structures blocking views_____
5. Other_____

*Tally the frequency of each component

STEP 3

COASTAL SCENIC LANDSCAPE ASSESSMENT

Field Inventory Form

Scenic Area_____ USGS Quads_____
Team Members _____
Date _____ Photography by _____
Weather _____

Accuracy of data from Step 1 (views, physical features)_____
_____
_____
_____
_____
_____
_____
_____
_____

FINAL RATING

	High	Med-high	Medium	Med-low	Low
Land Use	5	4	3	2	1
Vegetation	5	4	3	2	1
Landscape	5	4	3	2	1

TOTAL POINTS _____

Comments_____
_____
_____
_____

Figure 6: Field Form for Region II

POSITIVE COMPONENTS* **COMMENTS**

I. LAND USE

A. Rural Land Use
1. Working farm_____
2. Vernacular architecture_____
3. Historic structure_____
4. Other unusual structure_____
5. Interesting bridge_____
6. Stone wall or wooden fence_____
7. Old cemetery_____
8. Traditional church_____
9. Distant village skyline or edge_____
10. Mooring area_____
11. Other_____

B. Rural Road Characteristics
1. Tree canopied_____
2. Lined by stately sugar maples_____
3. Conforming to contours_____
4. Other_____

C. Settlement Characteristics
1. Distinct village gateways_____
2. Prominent community buildings and parks_____
3. Harmonious building heights and masses_____
4. Vernacular or harmonious architecture_____
5. Historic building_____
6. Historic district_____
7. Statue, fountain, bandstand_____
8. Tree lined street_____
9. Harbor / mooring area_____
10. Other_____

D. Overall Condition of built environment (circle one) high medium low

II. VEGETATION

1. Park like_____
2. Agricultural patterns (orchards, crop land)_____
3. Field and forest edge_____
4. Woodland or tree patterns (mixed species)_____
5. Mass of wildflowers or ferns_____
6. Screening between incompatable or unsightly land uses_____

7. Other_____

III. LANDSCAPE COMPOSITION AND EFFECT

1. Open, rolling topography_____
2. High diversity_____
3. Mysterious(winding roads or water bodies, intermittent views of open areas or water bodies)_____
4. Degree of naturalism_____
5. Degree of separation between villages and rural areas_____
6. Other_____

*Tally the frequency of each component

FOR USE IF MORE THAN ONE VILLAGE OR SETTLEMENT WITHIN A GIVEN SCENIC AREA

C. Settlement Characteristics
1. Distinct village gateways_____
2. Prominent community buildings and parks_____
3. Harmonious building heights and masses_____
4. Vernacular or harmonious architecture_____
5. Historic building_____
6. Historic district_____
7. Statue, fountain, bandstand_____
8. Tree lined street_____
9. Harbor / mooring area_____
10. Other_____

C. Settlement Characteristics
1. Distinct village gateways_____
2. Prominent community buildings and parks_____
3. Harmonious building heights and masses_____
4. Vernacular or harmonious architecture_____
5. Historic building_____
6. Historic district_____
7. Statue, fountain, bandstand_____
8. Tree lined street_____
9. Harbor / mooring area_____
10. Other_____

C. Settlement Characteristics
1. Distinct village gateways_____
2. Prominent community buildings and parks_____
3. Harmonious building heights and masses_____
4. Vernacular or harmonious architecture_____
5. Historic building_____
6. Historic district_____
7. Statue, fountain, bandstand_____
8. Tree lined street_____
9. Harbor / mooring area_____
10. Other_____

Table 3.

COASTAL SCENIC INVENTORY: REGION I RESULTS*

		OFFICE RATING **										FIELD RATING				
		Topography				Special Features			Views of Water							
Name	Code	Elev	Slope	Open Areas	Shoreline Configuration	LH	Beach	Har.	HI	MED	LOW	Total	Land Use	Vegetation	Landscape Effect	Total	COMBINED RATING
State Significance																	
York River/Harbor	RIYK01	-	-	5	-	-	-	5	30	69	7	116	5	5	NA	10	126
Scarborough Marsh	SC01	-	-	5	-	-	10	5	15	45	3	83	3	5	NA	8	91
Biddeford Pool	BI01	-	-	5	5	5	10	5	15	12	2	59	3	3	NA	6	65
Kennebunk Harbor	KE03	-	-	5	-	-	-	5	10	33	6	59	5	1	NA	6	65
Webhannet/Little River	WE02	-	-	5	-	-	-	5	15	15	4	44	5	5	NA	10	54
Regional Significance																	
Cape Porpoise	KP02	-	-	5	5	5		5	20	-	-	40	5	3	NA	8	48
Saco River	SA02	-	-	5	-	-		-	30	3	-	38	5	3	NA	8	46
Goosefare Bay	KP01	-	-	5	5	-		-	15	3	6	34	5	5	NA	10	44
Kittery Point	KT02	-	-	5	5	5		5	-	12	-	29	5	3	NA	8	37
Mousam River (mouth of)	KE04	-	-	5	-	-	5	-	10	3	2	25	5	5	NA	10	35
Brave Boat Harbor	KT01	-	-	5	-	-	5	-	5	3	3	21	5	5	NA	10	31
Ogunquit Beach/River	OG01	-	-	5	-	-	5	-	-	3	2	21	1	5	NA	6	27
Mount Agamenticus	YK01	5	5	-	-	-	-	-	5	-	-	15	5	5	NA	10	25
Cape Neddick River	YK07	-	-	-	-	-	-	-	5	12	1	18	3	3	NA	6	24
Spurwink River	SC02	-	-	5	-	-	-	-	10	-	-	15	3	5	NA	8	23
Great Hill	SB04	5	5	5	-	-	-	-	-	-	-	15	5	3	NA	6	23
Chases Pond	YK02	5	5	-	-	-	-	-	-	6	-	16	3	3	NA	6	22
Goosefare Brook	SA03	-	-	5	-	-	-	-	5	3	2	15	3	3	NA	6	21
Local Significance																	
Sturgeon Brook	EL01	-	-	5	-	-	-	-	-	3	3	11	3	3	NA	6	17
Merriland River	WE01	-	-	5	-	-	-	-	-	-	6	11	3	3	NA	6	17
Leighs Mill Pond	SB02	-	-	-	-	-	-	-	10	-	-	10	3	3	NA	6	16
Drowning/Day Roads	KE01	5	-	5	-	-	-	-	-	-	2	7	5	3	NA	8	15
Cape Neddick Nubble	YK06	-	-	-	-	5	-	-	-	3	-	8	5	1	NA	6	14
Marginal Way/Perkins Cove	OG02	-	-	-	-	-	-	5	5	-	-	10	3	1	NA	4	14
Berry Hill	SA01	5	-	5	-	-	-	-	-	-	-	10	3	1	NA	4	14
Phillips Cove	YK08	-	-	-	-	-	-	-	5	-	1	6	5	3	NA	8	14

LH = Light Houses
Har. = Harbors
NA = Not applicable

* See text for explanation of rating scheme.

** Due to inconsistant recording, the office rating was not adjusted to account for field confirmation of the office data.

Table 4.

COASTAL SCENIC INVENTORY: REGION II RESULTS *

	Code	Office Rating ** Elev	Slope	Open Areas	Shoreline Configuration	Special Features Ship/LH/Beach/Har./Port					Views of Water HI	MED	LOW	Total	Field Rating Land Use	Vegetation	Landscape Effect	Total	Combined Rating
State Significance																			
Small Point/Popham	RIIPH02	5	5	5	5	-	10	15	-	10	25	6	2	88	5	5	5	15	103
Port Clyde	SG02	-	5	5	5	-	5	5	5	10	10	18	-	68	4	4	4	12	80
Wiscasset	WI01	-	5	5	5	5	-	-	-	5	20	12	3	60	4	3	4	11	71
Arrowsic	AW01	-	5	5	5	-	5	-	-	-	5	27	4	56	4	4	4	12	68
Boothbay Harbor	BH01	-	5	-	5	5	5	-	5	-	5	27	1	58	4	3	3	10	68
Georgetown/Reid	GT02	-	5	5	5	-	-	5	-	-	10	18	-	48	5	5	5	15	63
Long Reach Mt./Cove	HA02	-	5	5	5	-	-	-	-	-	15	18	2	50	3	3	4	10	60
Regional Significance																			
Medomak River	WD01	5	5	5	5	-	-	-	-	-	5	18	7	50	1	3	2	6	56
Christmas Cove	SR03	-	5	5	5	-	-	5	-	-	5	15	1	41	5	5	5	15	56
Spruce Head	ST01	-	-	-	5	-	5	-	5	-	20	6	-	41	5	5	5	15	56
Cape Elizabeth	CE01	-	-	5	5	-	5	5	-	-	20	-	-	40	5	5	5	15	55
Meduncook River	FI01	-	-	5	5	-	-	-	5	-	15	9	2	41	5	4	5	14	55
Bath/Woolwich	WO01	-	-	5	5	-	-	-	5	-	15	12	3	45	3	3	4	10	55
Fisherman's Passage	BO03	-	-	-	5	-	5	-	-	-	25	-	-	35	5	5	5	15	50
Parker Head/Marrtown	PH04	5	5	5	5	-	5	-	-	-	5	6	1	37	4	4	4	12	49
Damariscotta River	DA01	-	-	5	5	-	-	-	-	-	5	21	2	38	3	3	3	9	47
So. Freeport	FP04	5	5	5	5	-	-	-	5	-	5	-	-	30	4	4	5	13	43
New Harbor	BR02	-	-	-	5	-	-	-	5	-	15	-	-	25	5	5	5	15	40
Mackerel Cove	HA06	-	-	-	5	-	-	-	5	-	5	9	1	25	5	5	5	15	40
Broad Cove	CV05	-	-	5	5	-	-	-	-	-	5	12	-	27	3	3	3	9	36
Burnette Road	FP03	-	-	5	5	-	-	-	-	-	5	6	-	21	5	5	5	15	36
Cozy Harbor	SP02	-	-	-	5	-	5	-	5	-	5	-	1	21	5	5	5	15	36
Cundy's Island	HA01	-	-	-	5	-	-	-	5	-	-	12	-	22	4	4	5	13	35
Gurnet Strait	BU02	-	-	5	5	-	-	-	-	-	5	9	1	25	3	3	3	9	34
Round Pond	BR01	-	5	-	5	-	-	-	5	-	5	-	1	21	4	4	3	11	32
Thomas Bay	BU01	-	-	5	5	-	-	5	-	-	-	3	2	20	4	4	4	12	32
Mill Cove	WB01	-	5	5	5	-	-	-	-	-	-	3	2	20	4	4	4	12	32
Presumpscot River	FA01	-	-	5	5	-	-	-	-	-	-	12	1	23	3	3	3	9	32
Five Islands	GT04	-	-	-	5	-	-	-	5	-	5	3	-	18	5	4	4	13	31
Tenants Harbor	SG01	-	-	-	5	-	5	-	5	-	-	6	1	22	3	3	3	9	31
Burnt Jacket Channel	WO02	-	-	5	5	-	-	-	-	-	-	6	-	16	5	5	5	15	31
Pemaquid Point	BR04	-	-	-	5	-	5	-	-	-	5	-	-	15	5	5	5	15	30
Back Cove/E. Promenade	P003	-	-	5	-	-	-	-	-	-	10	3	-	18	4	4	4	12	30

LH = Light Houses
HAR = Harbors

* See text for explanation of rating scheme.

** Due to inconsistant recording, the office rating was not adjusted to account for field confirmation of the office data.

Table 4.

COASTAL SCENIC INVENTORY: REGION II RESULTS *

	Code	Office Rating ** Elev	Slope	Open Areas	Shoreline Configuration	Special Features Ship/LH/Beach/Bar./Port					Views of Water HI	MED	LOW	Total	Field Rating Land Use	Vegetation	Landscape Effect	Total	Combined Rating
Local Significance																			
Fore River	P001	-	-	5	5	-	-	-	-	-	-	9	7	26	1	1	1	3	29
Route 131	ST03	-	-	5	5	-	-	-	-	-	10	-	-	20	2	3	4	9	29
South Harpswell	HA05	-	-	-	5	-	-	-	-	-	10	-	-	15	4	4	4	12	27
Cape Harbor	SP01	-	-	-	5	-	5	-	-	-	5	-	-	15	4	4	4	12	27
Weskeag Creek	BA01	-	-	5	5	-	-	-	-	-	-	6	-	16	4	3	4	11	27
East Boothbay	B004	-	5	-	5	-	-	-	-	-	-	6	-	16	4	3	4	11	27
Waites Landing	FA02	-	-	5	5	-	-	-	-	-	-	3	-	13	4	5	5	14	27
Little Flying Point	FP02	-	-	5	5	-	-	-	-	-	-	3	-	13	4	4	4	12	25
Maple Juice Cove	CU02	-	-	5	5	-	-	-	-	-	-	3	1	14	3	3	3	9	23
Weskeag River	ST02	-	-	5	5	-	-	-	-	-	-	6	1	17	1	1	1	3	20
Cousins River	YA02	-	-	5	5	-	-	-	-	-	-	-	3	13	2	2	2	6	19
Maquot Bay	BU06	-	-	5	5	-	-	-	-	-	5	-	2	17	1	1	3	5	17
Need to be Field Checked																			
Johnson Cove	CM01	-	-	5	5	-	-	5	-	-	-	3	-	18					
Casco Bay Islands		-	-	5	5	-	5	10	1	15	-	24	1	65					
Monhegan Island	M001	-	5	5	5	-	5	-	-	-	-	-	-	20					
Pleasant Point Gut	CU03	-	-	-	5	-	-	-	5	-	-	3	-	13					
Seguin Island	PH01	-	5	-	5	-	5	-	-	-	-	-	-	15					

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APPENDIX A - REGIONAL CHARACTERIZATIONS

Characterization of Region I

Aerial Extent:	Kittery to Cape Elizabeth, the Sandy Beach region.
Land Form:	Ranging in elevation from sea level to feet. Little relative relief except for Mt. Agamenticus, the seaward slope is very gradual.
Geologic Features:	The sedimentary rocks underlying this region run parallel to the shoreline and contribute to its straightness. Islands are few and generally run parallel to the shore. Sand beaches are extensive. Glacial outwash deposits cover this area although north of Kennebunk marine clay deposits prevail.
Vegetation:	This region is characterized by oak forests in the southern third, with White Pine dominating and transition hardwoods in the northern two-thirds. Pitch Pine is prevalant.
Land Use:	This is Maine's most densely populated region, although some farming still remains. It is a strong resort and vacation area. Many second homes and seasonal populations.
Water Features:	Several large rivers dissect the coastal lowlands: York River, Mousam River, Saco River and Nonesuch River. The salt marsh estuaries of these areas are some of the more productive in Maine. They do not extend far inland. Lakes and ponds are relatively scarce. There are extensive coastal wetlands.
Cultural Features:	Old mill towns. Fishing not a major component of landscape or economy. Many areas haphazardly developed although there are several harmoniously developed areas.
Coastal Systems:	Extensive estuarine and barrier beaches that run parallel to the coast. Islands are rare. Rocky headlands are not common in this region.

Adapted from: The Natural Regions of Maine (Adamus, PR. 1978)

Characterization of Region II

Aerial Extent:	Cape Elizabeth to South Bristol including the southern bounds of Merrymeeting Bay.
Land Form:	Elevation and relief are low. The coastline is highly irregular. Rolling hilly terrain and drowned river mouths produce deeply indented, steep sided peninsulas. Islands are numerous.
Geologic Features:	Bedrock formations are northeast-southwest trending with numerous offshore islands. Marine clays and thin glacial tills predominate. Rock outcrops in spots with outwash deposits scattered near coast.
Vegetation:	The forests are composed principally of White Pine and mixed hardwoods. Spruce fir forests are found spordically, especially on the islands and in the more northerly portions of the region.
Land Use:	This region is somewhat suburban. Farming, especially hay farms are active. Strip development is prevelant.
Water Features:	This area has many rivers and their estuaries including the Kennebec, Presumpscot, Royal, Sheepscot, and Damariscotta. Numerous coves are afforded by the deeply indented shoreline. Small ponds and fresh marshes are common east of Brunswick. There is an abundance of bogs.
Cultural Features:	This region includes Portland and its suburbs, a fast growing residential area. South and east of Brunswick tourism is an important component of the local economy, and there are an abundance of second homes on the coast. The fishing industry is very strong. I-95, Bath Iron Works, and L.L. Bean.

Adapted from: The Natural Regions of Maine (Adamus, PR. 1978)

Characterization of Region III

Aerial Extent:	Friendship to Gouldsboro. Up the Penobscot River to Bucksport. Muscongus to Frenchman's Bay. Also includes the numerous coastal islands.
Land Form:	The islands of this region are rounded and domelike. The shoreline is moderately indented and has the most relief of the Coast.
Geologic Features:	Much of the coastal bedrock has been deeply reroded by streams and glacial ice. Sand beaches are scarce. Outwash plains are not common. Mt. Desert Island has many well-exposed glacial features.
Vegetation:	The coastal vegetation is dominated by spruce-fir forests although northern hardwoods and hemlock become more common inland.
Land Use:	This area is more rural than the southern coast. Many overgrown agricultural fields.
Water Features:	This region is dominated by the Penobscot River and its estuary. However, there are many small north-south trending ponds and freshwater marshes. Salt marsh acreage is limited.
Cultural Features:	Region 3 is more rural but still hosts a viable tourist economy especially on and near Mt. Desert Island. Seasonal homes. Strong fishing industry. Camden and Acadia National Park are tourist centers. Islands are less populated. Cianbro Cement Plant.

Adapted from: The Natural Regions of Maine (Adamus, PR. 1978)

Characterization of Region IV

Aerial Extent:	Gouldsboro to Calais, "Downeast"
Land Form:	Low relief and elevation characterize this region. The coastline is moderately indented with several large bays and many small rocky islands. Long rocky peninsulas are common. Rolling hills, mudflats, and coastal wetlands are abundant.
Geologic Features:	Glacial outwash is prevalent on the peninsulas exemplified by rocky boulders in the soil with marine sediments more common inland. There are many cliffs and escarpments.
Vegetation:	Spruce-fir forests dominate the vegetation both on the coast and inland. It grows most densely on the outer peninsulas and points - white cedar growing in swamps and maple-birch forests are found on dry sites. Moorlike barrens are common in this region.
Land Use:	Rural, resource-oriented economy. A lot of open space and blueberry barrens.
Water Features:	Ponds and freshwater wetlands are few. Estuaries, except for Cobscook Bay are undeveloped. Cobscook Bay is essentially one large shallow estuary. Many salt marshes and coastal wetlands with low vegetation. The high tidal amplitude contributes to the diversity of the marine fauna. Several major rivers dissect the region.
Coastal Systems:	Rocky headlands, spruce covered shorelines. The high tidal amplitude results in a lot of coastal wetlands and productive mudflats.
Cultural Features:	This is the least populated region of the coast and also the poorest. Fishing and forestry dominate the economy. Blueberries. Highway I. A lot of older restored homes, some tourism. Pleasant Point Indian Reservation.

Adapted from: The Natural Regions of Maine (Adamus, PR. 1978)

Characterization of Region V

Aerial Extent:	Kennebec (5A) and the Penobscot River (5B) Valleys and inland portions of southwestern Maine.
Land Form:	Rolling hills, moderate elevations from 100 to 500 feet. Hills usually have low profiles on all sides. Ridges trend northeast-southwest.
Geologic Features:	This area is covered with glacial till and outwash. Ridges are northeast-southwest trending.
Vegetation:	Hardwood, Hemlock, and White Pine forests dominate in the western portion especially on sandy soils while transition hardwoods are more common in the east. The Maple Birch and Beech forest occurs on richer soils. Overall, the soil is more fertile in this region than other areas.
Land Use:	Residential areas on I-95 corridor, farming is prevalent although there is much second growth forest.
Water Features:	Merrymeeting Bay is an outstanding wetland in the region. 5A has numerous freshwater ponds and wetlands but they are more scarce in 5B - Kennebec and Penobscot Rivers.
Cultural Features:	Two major cities and their surrounding villages, I-95, UMO, farming. Vacation in the Sebago Lake, Belgrade area.

Adapted from: The Natural Regions of Maine (Adamus, PR. 1978)

APPENDIX B

TOWN CODES

Region I

Arundel	- AR
Biddeford	- BI
Eliot	- EL
Kennebunk	- KE
Kennebunkport	- KP
Kittery	- KT
Ogunquit	- OG
Old Orchard Beach	- OOB
Saco	- SA
Scarborough	- SC
South Berwick	- SB
Wells	- WE
York	- YK

Region II

Arrowsic	- AW
Bath	- BA
Boothbay	- BO
Boothbay Harbor	- BH
Bowdoinham	- BW
Bremen	- BE
Bristol	- BR
Brunswick	- BU
Cape Elizabeth	- CE
Cumberland	- CM
Cushing	- CU
Damariscotta	- DA
Falmouth	- FA
Freeport	- FP
Friendship	- FI
Georgetown	- GT
Harpswell	- HA
Monhegan	- MO
Newcastle	- NE
Nobleboro	- NO
Phippsburg	- PH
Portland	- PO
St. George	- SG
South Bristol	- SB
South Thomaston	- ST
Southport	- SP
Waldoboro	- WD
Warren	- WR
West Bath	- WB
Wiscasset	- WI
Woolwich	- WO
Yarmouth	- YA