Technical Memorandum: Procedures Used To Identify, Evaluate and Recommend Areas For Designation As "Significant Coastal Fish And Wildlife Habitats"

Grant Number: NA-82-AA-D-CZ068

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Date: July 24, 1984

ACKNOWLEDGEMENTS

I express thanks to all agencies and organizations who provided written comments on the Draft Technical Memorandum.

To Tom Hart and Jim Morton of the New York State Department of State, my sincere appreciation for their patience and assistance throughout the development of this document.

I was fortunate in having the assistance of the Habitat Inventory Unit in the Division of Fish and Wildlife, Department of Environmental Conservation. In particular, to Diane Crawford who prepared the maps used in Appendix A, and to Al Breisch for his review of the draft manuscript and for his earlier work entitled "The Development and Evaluation of a System for Rating Fish and Wildlife Habitats in the Coastal Zone of New York State" which laid the foundation for this manuscript; thank you very much.

Special thanks to Larry Brown and Eric Fried, New York State Department of Environmental Conservation, for their enthusiastic review of this and earlier manuscripts and for their assistance as co-authors of the significant habitats rating system which was adapted for these purposes. Also, special thanks to Anne Brownell, Bryan Swift and Chris von Schilgen, my colleagues on the significant habitats coastal project, for their encouragement and assistance.

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APPENDICES

I. INTRODUCTION

The Waterfront Revitalization and Coastal Resources Act (WRCR) of 1981 declares it to be the public policy of New York State to conserve, protect and, where appropriate, promote commercial and recreational use of fish and wildlife resources and to conserve fish and wildlife habitats identified by the Department of Environmental Conservation (DEC) as critical to the maintenance or re-establishment of species of fish and wildlife (Executive Law of New York, Article 42, Sections 910-920).

The implementation of this policy requires that fish and wildlife habitats in the coastal area be evaluated so that the most important or "significant" habitats may be identified and designated for protection. The Department of State (DOS) has been given the statutory authority to manage all aspects of the coastal program, while DEC has the responsibility for management of fish and wildlife. DOS has subsequently contracted with DEC to identify and evaluate habitats within the coastal regions of New York for designation as "Significant Coastal Fish and Wildlife Habitats." The Division of Fish and Wildlife has been identified as the unit responsible for this activity within the DEC.

In order to evaluate fish and wildlife habitats a rating system was developed. This rating system may be applied to all fish and wildlife habitats within the coastal regions of New York as those regions are defined in the "Coastal Management Program and Final Environmental Impact Statement" (CMP) (U.S. Office of Coastal Zone Management, 1982). It cannot be applied to rare plant habitats per se, or to other areas of concern such as unique geologic or scenic sites. Habitats of plants cannot currently be designated since the WRCR Act authorizes work only on fish and wildlife habitats. Identification and designation of unique geologic and scenic sites is being conducted under a separate effort by DOS.

Fish and wildlife habitats are areas where fish and wildlife must live, either seasonally or permanently, to meet at least some portion of their life requirements. They usually contain a unique combination of environmental and biological conditions which fish and wildlife need for survival. Examples include coastal wetlands, breeding grounds, nursery areas, migratory routes and areas of high human use of the fish and wildlife resource. Coastal management policy recognizes the importance of protecting the set of special physical, chemical, geographic and community components which functionally define significant fish and wildlife habitats.

Fish and Wildlife means fish, wildlife, shellfish and crustacea as defined as defined by Environmental Conservation Law (ECL). Habitats of invertebrates (other than commercially important shellfish and crustacea), in general will not be considered, except in special cases for species listed in the New York Code of Rules and Regulations (NYCRR) - Title 6, Part 182. In addition to shellfish and crustacea, there currently are two invertebrate species listed in the regulations. These are the Karner blue butterfly (Lycaeides melissa) and

the Chittenango ovate amber snail (Succinea chittenangoensis). The occurrence of either of these species is doubtful within the coastal regions of New York.

As part of the identification procedure, boundaries will be established for each habitat DEC recommends for designation. These boundaries will coincide with the natural boundary defined by the fish and wildlife using the area. Where possible, for convenience, DEC will attempt to align the boundary with geographic features. Ownership, political jurisdictions or conflicting uses, however, will not be considered in boundary determinations. Boundaries will be based upon DEC staff's best professional judgement. They will maximize inclusion of the fish and wildlife values contributing to the habitat's importance, and will minimize inclusion of adjacent land and water not pertinent to those values. Instances where areas containing fish and wildlife values that are clearly a part of a coastal habitat, but are excluded by the coastal area boundary, will have proposed boundaries that encompass the entire habitat. The coastal area boundary can then be amended to include these areas determined to be integral to the habitat (NYCRR - Title 19, Part 602.2).

It is not feasible to designate very large ecosystems such as Lake Erie or the Hudson River even though they may support significant fish and/or wildlife populations. This would only diminish the ability of the area's fish and wildlife values to compete with other land uses. Therefore, only smaller, discrete communities which contribute to the overall significance of the large ecosystem will be evaluated.

Once an area is designated, it is afforded special protection. Proposed actions occurring within or adjacent to the habitat must be consistent with the following policy: "Significant coastal fish and wildlife habitats, as identified on the coastal area map, shall be protected and preserved so as to maintain their viability as habitats" (NYCRR - Title 19, Part 600). When an action has the potential to impair the viability of a designated habitat, that action would only be permitted when the following criteria have been met: 1. No reasonable alternative exists; 2. The action taken will minimize all adverse effects to the maximum extent practicable; 3. The action will advance one or more of the coastal policies; and 4. The action will result in an overriding regional or statewide public benefit.

In the implementation of the coastal management fish and wildlife policy, it is the impact of proposed actions on designated habitats that must be addressed. These actions may occur within or adjacent to a designated habitat. Actions which do not occur within a designated habitat may still result in a significant impairment of the designated habitat. Conversely, actions which do not alter the environmental or community components which support the fish and wildlife, and actions which do not impair the fish and wildlife using the area, would be permitted to occur near or within the designated habitat. In other words, designation of an area does not preclude all actions within the area.

The CMP defines specific criteria which are to be used to identify significant fish and wildlife habitats. Recognizing that New York State has lost a considerable portion of its

coastal fish and wildlife resources to development and environmental degradation, it would be relatively easy to make strong arguments that all remaining fish and wildlife habitats meet one or more of the CMP criteria for designation as "significant habitats". However, from a practical standpoint, it would be impossible to designate all of these areas. Therefore, priorities must be established for conservation of the most valuable habitats. As a result, some areas may not be formally designated although they have very real and significant fish and wildlife values, or they have the potential for developing significant fish and wildlife values. The rating system, then, will be used as a tool to select the "most valuable" habitats.

This document details the procedures that will be used to designate significant fish and wildlife habitats within the coastal zone of New York, and presents the rating system DEC will use to evaluate habitats for this purpose. The rating system is based upon a preliminary report entitled "The Development and Evaluation of a System for Rating Fish and Wildlife Habitats in the Coastal Zone of New York" (Breisch, 1981). That report served as a pilot study to determine the utility of the system to evaluate coastal habitats. The results of the pilot study indicated that the rating system was sufficiently flexible to be applied to the wide array of fish and wildlife habitats found within the coastal area as defined in the WRCR Act (Executive Law, Article 42, Section 911). The rating system presented here reflects changes made as a result of the preliminary study. Additional changes have been incorporated based upon public comment received on the "Draft Technical Memorandum", dated June 7, 1983.

The following sections present: 1. The procedures used to designate "Significant Coastal Fish and Wildlife Habitats", including the roles of DOS and DEC and the opportunities for public involvement, and 2. The rating system that DEC will use to evaluate areas to select those which are the most important to protect.

II. PROCEDURES USED TO IDENTIFY AND DESIGNATE "SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS"

The Waterfront Revitalization and Coastal Resources Act requires that fish and wildlife habitats of statewide significance be identified. Upon identification the Secretary of State shall designate these areas as "Significant Coastal Fish and Wildlife Habitats" and specifically delineate these habitats, specifying the reasons why the areas are of statewide significance. Procedures to accomplish this are outlined below.

A. Identification of Areas to Evaluate

Areas to be evaluated will be identified throughout the term of the Interagency Agreement between DOS and DEC (New York State Department of State, 1983) from a variety of sources available to the DEC Significant Habitat Unit (SHU) staff.

Specifically, all areas within the coastal zone which are listed in the Significant Habitat Unit's file will be examined. The SHU's file consists of reports on

approximately 2400 areas statewide. The file was compiled from existing Division of Fish and Wildlife files, and from solicitations of information from a variety of professional and amateur naturalists throughout the State, as well as ongoing DEC staff efforts. The file also includes selected information from two preliminary inventories of coastal habitats which were conducted for DOS by DEC ([Zeisel, 1976] and [Breisch, 1981]).

DEC has identified approximately 225 areas contained in the above files which occur within the five coastal regions of New York. These areas will be examined by DEC during the term of the interagency agreement. In addition, nominations of areas are expected from local communities participating in the Waterfront Revitalization Plan, various environmental groups, DEC regional Fish and Wildlife and Marine Resources staff and from individuals with an expressed interest. Nomination forms are available from DOS. A sample form is included in this document as Appendix D. Nominations should be sent directly to DOS. The Department of State will then forward the nominations to DEC for evaluation. Habitats which fall within the coastal zone which are nominated for inclusion in DEC's statewide significant habitat file will also be evaluated.

Finally, all available reports concerning coastal resources will be reviewed for identification of additional areas as time and monies permit. A list of data sources reviewed will be compiled and submitted to DOS at the completion of the agreement.

B. Setting Priorities for Evaluation

Due to the large number of areas that need to be evaluated, priorities must be established to accomplish this work. DEC and DOS have established the following criteria for setting priorities for evaluation: 1. Ease and efficiency of reporting and evaluating; 2. Urgency based upon the schedule for local waterfront revitalization plans and urgency for protection; and 3. Preliminary qualitative judgement of areas likely to qualify for designation.

C. DEC Reviews and Evaluates Areas

DEC will collect as much information as possible pertaining to the designation criteria. Information received via the nomination forms or from the significant habitats file will be substantiated. Additional data necessary to evaluate areas will be obtained from knowledgeable individuals, existing data sources and limited field reconnaissance.

Each area will be evaluated by a "team" of biologists and technicians using the procedures specified in the rating system which follows. For each area meeting the minimum requirements for designation, DEC will prepare narratives describing the

location of the habitat, the community of organisms utilizing the habitat, the biological, physical and chemical parameters which should be considered for impact assessment, and the types of human activities likely to affect the habitat. In addition, a map delineating the boundary of the area will be prepared.

D. DEC Makes Recommendations

The Department of Environmental Conservation will make recommendations to the Secretary of State to designate each habitat identified for its significant fish and wildlife values. The DEC will provide to DOS a copy of the rating form, project narrative and the recommended boundary delineated on a New York State Department of Transportation (DOT) 1:24,000 scale map. DOT's topographic edition map will be the standard; DOT planimetrics will be used in conjunction with U.S.G.S. topographic edition 1:24,000 scale maps wherever DOT topographic editions are not available.

E. Public Hearings

Before any area is designated, one or more public hearings will be held. These will be conducted by DOS with participation by DEC. Notice of these hearings will appear in a paper of general circulation in the area of the site's designation at least ten (10) days prior to the hearing date. The hearings will be held at a location convenient to those who are likely to be affected or have an interest in the designations. This public notice will include the time and location of the hearings, identify the areas under consideration, and announce the availability of supporting documentation (i.e. rating summaries, project narratives and maps) for review prior to the hearing. In addition, DEC will make available at request, and will have available at all hearings, a list of areas which have been evaluated, but which have not met the minimum criteria for designation. Rating summaries of these areas will be available from DEC upon written request.

F. Designation of Areas

If the public hearings substantiate the accuracy of DEC's rating and boundary delineation, DEC's recommendation will be adopted and the Secretary of State will designate the area as a "Significant Coastal Fish and Wildlife Habitat". If public hearings do not substantiate the accuracy of DEC's rating and boundary delineation, DEC will make appropriate modifications to the narratives and maps resulting from public review and comment. If the habitat still meets the requirements for designation, the Secretary of State shall designate it as a "Significant Coastal Fish and Wildlife Habitat". The Secretary will make appropriate area identifications on the coastal area map, and file copies of the amended map with the clerk of each county and local government within whose jurisdiction the areas are located.

Additional copies of the amended maps will be provided to appropriate state and federal agencies. The designation will take effect on the fifteenth of the month following the filing of the amended maps.

G. Addition to, Modification of and Repeal of Significant Area Designations

The WRCR Act provides for continuous updating of information using the procedures outlined above. New areas may be nominated and designated and existing areas may be modified or the designation repealed. DEC has agreed to continue to evaluate and recommend areas to DOS on a limited basis following the completion of the agreement. In addition, the Secretary of State may repeal or modify an existing designation upon recommendation of DEC when, in the Secretary's opinion, the area no longer meets the criteria for designation as a result of irreversible changes or due to natural processes (NYCRR -Title 19, Part 602.4f).

III. THE RATING SYSTEM

A. Evaluation Criteria

The rating system presented below, is intended to serve as a means for evaluating areas in order to choose habitats of the highest quality for designation. Habitats that will merit the greater degree of protection afforded under the significant habitat policy, 1. Exhibit one or more of the following characteristics:

- are essential to the survival of a large portion of a particular fish and wildlife population (e.g. feeding grounds, nursery areas);
- support populations of species which are endangered, threatened or of special concern;
- support fish and wildlife populations having significant commercial, recreational or educational value; or
- are of a type which is not commonly found in the State or in a coastal region;

and, 2. Are to varying degrees difficult or even impossible to replace in kind.

The criteria specified in the CMP correspond to the criteria presented in DEC's rating system as follows:

	CMP	DEC
1.	Habitat Type Not Common in State or Coastal Region	Ecosystem Rarity (ER)
2.	Rare or Endangered Species	Species Vulnerability (SV)
3.	Commercial, Recreational, or Educational Value	Human Use (HU)
4.	Essential to Survival	Population Level (PL)
5.	Difficult to Replace	Replaceability (R)

The criteria used to evaluate significant habitats are of two types. Ecosystem Rarity (ER), Species Vulnerability (SV), Human Use (HU) and Population Level (PL), are independent variables defining a specific aspect of the environment. Each of these criteria can be individually assessed and a value can be assigned for each habitat. Replaceability (R), on the other hand, is not a measurable characteristic of the environment, but rather reflects the possibility (or expense) of replacing a habitat if the fish and wildlife values are lost. Replaceability also reflects the transitory nature of some fish and wildlife (e.g. ospreys and terns commonly move their nesting sites, apparently independent of human activities). Replaceability is said to be a dependent variable and is used as a modifier of the four other criteria. Replacement of a habitat must be complete, including the re-establishment of fish and wildlife populations using the habitat and providing the same opportunities for the human population using the habitat. Replacement may occur on another site as long as the replacement does not diminish the existing fish and wildlife values of the replacement site.

An explanation and discussion of the five criteria follows:

1. Ecosystem Rarity (ER) is defined as the "uniqueness" of the plant and animal community and the physical, structural and chemical features which support this community. Each habitat which is to be evaluated must be large enough and healthy enough to sustain its own fish and wildlife community on a long term or repeating basis (i.e. the habitat must be occupied at least on a semi-regular basis for several years). In some instances fish or wildlife use of an area may not occur on an annual basis (e.g. some water waterfowl wintering areas are not used in severe winters because open water is not present); however, the long term use of these kinds of areas can easily be documented. Both numbers of similar ecosystems and total area of the type located in New York or in the United States should be considered when assessing rarity. For an ecosystem to be considered "unique" it must be the only one

which supports a particular fish and/or wildlife community in the United States. The levels of ER are: unique, rare in the United States, rare in New York, rare in a major ecological region of New York [1], rare in an ecological subzone of New York [1], rare in the county or not rare.

2. Species Vulnerability (SV) reflects the degree of vulnerability of a species throughout its range in New York State. Vulnerable species shall be defined as those species listed as Endangered, Threatened, or of Special Concern (NYCRR - Title 6, Part 182 - also see Appendix B). The SV criterion may be applied only if the species is resident in the ecosystem or if the ecosystem contributes to the species survival (e.g. a hawk observation area would not receive a SV score if a rare species was occasionally observed there. In order for a habitat to receive an SV score it would have to contribute significantly to the survival of the rare species in New York). The levels of Species Vulnerability are: Endangered [2], Threatened [2], Special Concern [2], or Not Vulnerable [3].

3. Human Use (HU) refers to significant (i.e. demonstrable) commercial, recreational or educational wildlife related human uses. The uses may be either consumptive or non-consumptive, and may be on the area itself, or if off the area, directly dependent upon the area. For instance, an important fish spawning shoal may sustain a nearby major recreational fishery which attracts large numbers of out-of-state anglers (i.e. the HU is off the area being evaluated, but directly dependent upon the conservation of the area). Human Use is measured by direct evidence (e.g. reports and/or records of actual use) when available; however, in most instances, direct evidence is not available. In a majority of cases local knowledge from individuals familiar with the site will be used to assign an appropriate score for HU. Commercial use applies only to specific fish populations having legal, regulated harvests. Recreational uses include activities such as birdwatching and photography (non-consumptive), or hunting, fishing and trapping (consumptive). Examples of educational use are nature study, scientific research and environmental education. The recreational and educational score should take into account the demographic area from which the majority of users are attracted. The commercial score should reflect the fact that the resource contributes significantly to the economy of the demographic region. In no instances will recreational activities not directly related to fish and wildlife be used to evaluate HU. If more than one type of HU occurs on an area (e.g. a commercial fishery important to local residents and a major recreational birdwatching site of statewide significance) the score should reflect all uses. In the example above, one-half of the lower score for HU would be added to the higher score (see Additive division, page ##). The uses are considered in terms of significant commercial, recreational or educational use in: the world, the United States, a major region of the United States [4], New York, a major region of New York [5], a county or no significant human use values.

4. Population Level (PL) refers to the concentration of a species on an area during its normal period of occurrence. For instance, an ecosystem may be important to waterfowl for only one month each spring, but loss of that habitat may have a significant long term effect upon the waterfowl population. In this case, the area would receive a PL score for the concentration during which the ecosystems use by waterfowl is important. The PL concentration must be a repeating long term phenomenon. It does not have to be an annual event, but it should occur in several consecutive years. The concentration does not necessarily mean that there are a large number of individuals using the area, but that the number is unusual in the State or in the United States (the latter is especially true for rare and endangered species). The values for the PL concentration are unusual in: the World, United States, a major ecological region of the United States [6], New York, a major ecological region of New York, a county or there is not an unusual concentration.

5. Replaceability (R) refers to an equivalent replacement for the same fish and wildlife and uses of that fish and wildlife. Replacement may be either on site or off site; however, if R is off site, it must meet the needs of the same human users and be comprised of the same fish or wildlife population. The replacement site must be identifiable and must not have its own significant fish and/or wildlife populations that would be degraded or lost if replacement occurred. For example, filling a productive and significant littoral zone to create a marsh would not be considered a viable replacement. A replacement site must be capable of providing equivalent human use opportunities to the original site and it must be economically feasible to replace the original site. Additionally, the techniques for replacement must be known and tested or, at least, there must be a reasonable likelihood for success. An artificially created urban fish and wildlife ecosystem in Buffalo, for instance, might be easily replaced in theory, by creating a new dredge spoil deposit site, but if no other suitable location has been identified within the metropolitan area, this habitat would be considered irreplaceable. Ecosystems may also be replaced by independent processes (i.e. processes not caused or influenced by humans). An example of this might be a heron colony in a coastal wetland which abandons its habitat in favor of another location one-half mile down the coast. An ecosystem may be: irreplaceable, difficult to replace or its replaceability may be uncertain, reasonably likely to be replaced, easily replaced by well understood techniques, or replaced naturally by independent processes within two years.

B. Calculation of Significance

1. Equation

The mathematical representation of an area's significance is given by the following formula:

$$\text{SIGNIFICANCE} = \text{HI} \times \text{R}$$

where "HI" is the habitat index and "R is the replaceability.

The habitat index (HI) is calculated as follows:

$$HI = ER + SV + HU + PL$$

where ER = Ecosystem Rarity
SV = Species Vulnerability
HU = Human Use
and PL = Population Level

Although it is agreed that from a strictly mathematical point of view you cannot add apples to oranges, it is possible to assign numerical values to these dimensionless measurements. These can then be added or multiplied together to serve the specific purpose for which they were designed (i.e. a set of scores or values to compare against an established threshold which defines significance).

2. Criteria Values

Scoring of each rating category is outlined below. We chose to use a progression of squares to select the values within each of the independent criteria because in our judgement this best represented the scale of values involved. In particular, a progression of squares allows for an increased increment of importance (e.g. as an ecosystem becomes rarer its value or significance increases more rapidly). A progression of squares also provides for a convenient method to weigh the importance of one criterion versus another.

In this rating system we felt that ER is approximately four (4) times as important as either HU or PL at the State level, and approximately one and three quarters (1.75) times as important as having one endangered species (SV=36) present on the area (e.g. if HU or PL=16, ER should be 4x16 or 64). Similarly, we felt that one endangered species (SV=36) using an area is approximately two and one quarter (2.25) times as important as the HU or PL for significance at the State level (e.g. if HU or PL=16, SV should be 2.25x16 or 36).

In some cases the progression of squares is not uniform. In ER, for example, we chose 3^2, 4^2, 5^2, 8^2, 9^2, and 10^2. This is because we felt that between an ecosystem rare in a major ecological region of New York and an ecosystem

rare in the State there was a greater magnitude of difference than would have been provided by a uniform progression.

Replaceability may have a substantial effect on the final score that an area receives (e.g. if R=0.4 the final score of an area would be less than half of the sum of the assigned score). However, since significant habitats are almost by definition unlikely to be replaced in kind, the replaceability criterion will usually have a minimal effect upon the final score (i.e. R will be 1.2 or 1.0 for a majority of habitats). Since R is used as a modifier of the other criteria, a linear progression of R values is the most appropriate. Replaceability is applied by multiplying the four other criteria by the R value.

If any one of the four criteria individually scores above the threshold after Replaceability has been applied, or if the additive score of the four criteria is greater than the threshold after Replaceability has been applied, the area would be recommended for designation.

The levels of each criterion are presented in Table 1 below.

Table 1. Levels of Evaluation Criteria

1. Ecosystem Rarity (ER)

Score	Ecosystem is:
100	Unique (One of a kind)
81	Rare in the United States
64	Rare in New York
25	Rare in major ecological region of New York
16	Rare in ecological subzone of New York
9	Rare in county
0	Not rare

2. Species Vulnerability (SV)

Score	Species Status:
36	Endangered
25	Threatened
16	Special concern
0	Not Vulnerable

3. Human Use (HU)

Score	Significant Commercial or Recreational Uses Important to Residents of the:
49	World
36	United States
25	Major region of the United States
16	State of New York
9	Major region of the State of New York
4	County
0	No significant human use values

4. Population Level (PL)

Score	The Concentration of a Species is Unusual in the:
49	World

36	United States
25	Major ecological region of the United States
16	State of New York
9	Major ecological region of New York
4	County
0	No unusual concentration

5. Replaceability (R)

Score	The Habitat, the Fish and Wildlife and the Users Are:
1.2	- Irreplaceable
1.0	- Difficult to replace; or - Uncertain of ability to replace (e.g. techniques not known or not tested); or - Cost of replacement prohibitive
0.8	- Techniques for replacement allow reasonable likelihood for success, and - Reasonable assurance of means for replacement; and - Replacement site identified; or - Will be replaced through independent processes, without active management within ten years.
0.6	- Easily replaced by well understood techniques and - Means for replacement immediately available; and - Replacement site identified; or - Will be replaced through independent processes, without active management within five years.
0.4	- Will be replaced through independent processes, without active management within two years.

3. Modifying Criteria Values

In evaluating habitats it is often desirable to assign values between the score levels presented in a criterion in order to make the rating system more responsive to actual conditions. For instance, if a habitat is rare in the State and rare in other northeastern states, but is not rare in the entire country, it may be appropriate to assign a score higher than the rare in New York

(ER=64) level will allow. The two methods presented below allow for this additional flexibility.

a. Geometric mean - the geometric mean is the square root of the product of the scores at two adjacent levels within a criterion. For instance, the geometric mean in ER between rare in New York (64) and rare in a major ecological region of New York (25) is $\sqrt{64x25}$, or 40. This value of forty would be used in certain instances when the importance of the ecosystem is actually above the assigned score for rare in a major ecological region (25), but somewhat less than rare in New York (64). The geometric mean may be used to lower the assigned ecosystem rarity score as well. For instance, it may be desirable to lower the score of a habitat that is part of a rare ecosystem in the State (ER=64) if the habitat is a very small component of the total occurrence of the ecosystem type in the State or coastal region or if it is a somewhat degraded example of that ecosystem type. In this case the score could be lowered to forty (40) by applying the technique outlined above.

   Geometric mean may also be used to modify the score of habitats which are rare in a larger context, such as rare in an ecological region or rare in the State, but are relatively common at a lower level such as in a county. For example, if an area is of a type which is rare in the State (ER=64), but there are several examples or large acreages of the type in the county, the score may be lowered to forty (40) for this area.

   We chose the geometric mean over the arithmetic mean because the geometric mean better reflects the central tendency between any two levels in a progression of squares.

   The geometric mean may be used to modify the ER, HU and PL criteria. An example of the geometric mean modifying technique appears in Appendix C - Sample Application of the Rating System.

b. Additive Division - Additive division, or the sum of division by powers of two, may be applied to both the species vulnerability (SV) and human use (HU) criteria. A maximum of five species will be considered in the SV criterion, beginning with the most vulnerable species, and adding the values of the second through the fifth most vulnerable species, if any, after dividing the individual score of each species successively by increasing powers of two (e.g. SV=56.75 for the four species which follow: bald eagle [36] + common tern [25/2] + least tern [25/4] + least bittern [16/8]). The same formula may be applied to the HU criterion, except that only three values may be added, the commercial use value, the

recreational use value and the educational use value. In this example, the highest of the three values (commercial, recreational or educational) is added to one-half of the next highest value and to one-quarter of the lowest value (e.g. HU=20.5 for recreational use [16] + educational use [9/2] and no commercial use). An example of the additive division modifying technique appears in Appendix C - Sample Application of the Rating System.

C. The Threshold for Recommendation

Habitats with scores above 15.5 will be recommended to DOS for designation. We chose 15.5 for the threshold in order to correspond to DOS's definition of "significant coastal fish and wildlife habitats." The Department of State's definition is: 1. Rare in a coastal region (our definition - ER, rare in an ecological subzone = 16), or 2. Rare or endangered species (our definition - SV, special concern = 16), or 3. Commercial, recreational or educational value (our definition - HU, important to residents of the State = 16), or 4. Essential to the survival of a large portion of a particular fish or wildlife population (our definition - PL, concentration of a species unusual in the State = 16). The value of 15.5 insures that any habitat receiving a score of sixteen (16) would be designated if the R score is, at least, "difficult to replace" (i.e. Replaceability (R) = 1.0).

There are two means by which an area may qualify for designation: by virture of the total significance score being above 15.5 after replaceability has been applied, or by any one of the four individual criteria being above 15.5 after replaceability has been applied.

A graphic representation of the threshold for a Replaceability (R) of 1.0 is presented in table 2 below.

Table 2. Visual Representation of the threshold (15.5) with replaceability (R) = 1.0.

ER	SV	HU	PL	
100				
81				
64		+		
		49	49	
	+			
	36	36	36	
				Accept for recommendation if any
25	25	25	25	one criterion x R is >15.5
16	16	16	16	(16 x 1.0)
9		9	9	Accept for recommendation only if
				additive score x R is > 15.5
		4	4	
0	0	0	0	

IV. DISCUSSION

Section 910 of the WRCR Act states that "New York State's coastal area is unique with a variety of natural, recreational, industrial, commercial, ecological, cultural, aesthetic and energy resources of statewide and national significance" (Executive Law of New York - Article 42).

In addition, New York's coastal resources are increasingly subject to pressures of development and, "competing demands result in loss of living marine resources and wildlife, the diminution of open space areas, shoreline erosion, permanent, adverse changes to ecological systems and a loss of economic opportunities" (ibid.).

"The social and economic well-being and the general welfare of the people of the State are critically dependent upon the preservation, enhancement, protection, development and use of natural and man-made resources of the State's coastal area." (ibid.).

Given this, the Legislature found that it is in the best interest of the people of the State to plan for preservation, enhancement, protection, development and use of coastal resources to insure a proper balance between natural resources and economic development (ibid.).

As a result, it is necessary to identify and designate fish and wildlife habitats of statewide and national significance. The rating system is meant to serve as a tool in the evaluation process.

The rating system is not infallible. Also, it is not intended for use by those unfamiliar with fisheries and/or wildlife science. It does provide, however, to a certain degree, confidence that all areas which are evaluated will be treated in the same manner and that individual biases or prejudices will be minimized. At the least, it makes explicit the criteria used to evaluate habitats.

The Department of Environmental Conservation reserves the right to make revisions to the rating system if, in DEC's opinion, it is not performing as originally anticipated. Modifications to the rating system and project narratives may also be necessary to reflect future changes in the NYCRR regarding the Endangered, Threatened or Special Concern Species lists. In some cases, it may be necesssary to repeal the designation of previously designated areas, or it may be necessary to re-evaluate areas that previously did not qualify for designation. The Department of State will consult with appropriate DEC staff prior to making a final decision in these instances.

It is important to remember that the rating system serves only as a tool for biologists in the decision making process. It is, however, the only method that will be used to make recommendations to DOS for designation. If, after public review, DEC's rating is found to be accurate, the Secretary of State will designate the area as a "significant coastal fish and wildlife habitat".

When a habitat lies partially within the coastal boundary we will rate the entire habitat and recommend to DOS that the coastal boundary be modified to incorporate the additional component of the habitat. In the event that the boundary modification cannot be accomplished at the time of the public hearings for designation, the portion of the habitat currently within the coastal boundary should be immediately designated and the additional portion should be designated when the boundary change takes affect.

An example of the application of the rating system is presented in Appendix C. Although the example is hypothetical, it accurately demonstrates the mechanics of the system. The example is comprised of a habitat description and sample rating form. Values found on the rating form are based on the information presented in the text and from the general comparative information on coastal fish and wildlife habitat types.

V. FOOTNOTES

1. Major ecological regions of New York and ecological subzones are defined in a New York Department of Environmental Conservation, 1983 publication for southern and western New York (see Section VI - References). Ecological regions and subzones in northern New York are modifications of Will, et. al., 1980 (See Section VI - References). These modifications involve terminology rather than physical boundaries. The "ecological zones'of northern New York are approximately equivalent to ecological subzones as defined by DEC. Therefore, the twenty-five ecological zones described by Will, et. al., will be considered ecological subzones for the purposes of the rating system. In addition, three ecological regions which contain the twenty-five northern New York zones, have been created by the author of the current document in order to correspond with the southern and western New York regions. The major ecological zones and subzones of New York are presented as Appendix A-1.

2. Endangered and threatened species, and species of special concern are listed in the NYCRR - Title 6, Part 182 (see Section VI - References) pursuant to Article 11 Section 11-0535 of the Environmental Conservation Law (ECL) of New York. A list of these species is included in Appendix B-1.

3. When an area is shown as having "no vulnerable species" this means that those species which are present are not currently subject to a significant threat in New York State. Included are all species in New York not liste as endangered, threatened, or of special concern in NYCRR - Title 6, Part 182 (see Section VI - References).

4. Major regions of the United States are adopted from the U.S. Bureau of Census "Geographic Regions and Divisions of the United States" (see Section VI - References). Each of the Divisions is considered a major region for the purposes of this rating system. The regions are shown in Appendix A-2.

5. Major regions of New York are adapted from the New York State Office of Parks, Recreation, and Historic Preservation's administrative regions (see Section VI - References). These are presented as Appendix A-3.

6. Major ecological regions of the United States follow Bailey's 1980 report entitled "Description of the Ecoregions of the United States" (see Section VI - References). A map showing these ecoregions is included as Appendix A-4.

VI. REFERENCES

Bailey, Robert G. 1980. Description of the Ecoregions of the United States. U.S. Department of Agriculture, Miscellaneous Publication No. 1391. 77p., map.

Breisch, Alvin R. 1981. Final Report: The Development and Evaluation of a System for Rating Fish and Wildlife Habitats in the Coastal Zone of New York State (Task 1.1 B). New York State Department of Environmental Conservation, Division of Fish and Wildlife, Delmar, New York.

Environmental Conservation Law of New York. Article 11, Section 11-0535. "Endangered and Threatened Species".

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Fried, Eric. Undated. Priority Rating of Wetlands For Acquisition. Unpublished manuscript. New York State Department of Environmental Conservation. Division of Fish and Wildlife, Delmar, New York.

New York Code of Rules and Regulations. Title 6, Part 182. "Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern".

New York Code of Rules and Regulations. Title 19 - Chapter 13. "Waterfront Revitalization and Coastal Resources", Part 602. "Coastal Area Boundary, Significant Fish and Wildlife Habitats, Important Agricultural Lands and Scenic Resources of Statewide Significance, Identification, Mapping and Designation Procedures".

New York State Department of Environmental Conservation. 1983. Physiographic Zones of Southern and Western New York. Division of Fish and Wildlife, Delmar, New York.

New York State Department of State. 1983. "Coastal Management Program Interagency Agreement By and Between The New York State Department of State and The New York State Department of Environmental Conservation".

New York State Office of Parks, Recreation and Historic Preservation. 1978. Statewide Comprehensive Recreation Plan Map. Albany, New York.

Ozard, John W., L. Brown, E. Fried, and A. Breisch. 1980. A System for Rating Significant Fish and Wildlife Habitats. Unpublished manuscript. New York State Department of Environmental Conservation, Division of Fish and Wildlife, Delmar, New York.

U.S. Bureau of the Census. Geographic Regions and Divisions of the United States. Department of Commerce, Washington, D.C.

U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures. Division of Ecological Services. Department of the Interior, Washington, D.C.

U.S. Office of Coastal Zone Management. 1982. State of New York Coastal Management Program and Final Environmental Impact Statement. National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D.C., and New York State Department of State, Albany, New York.

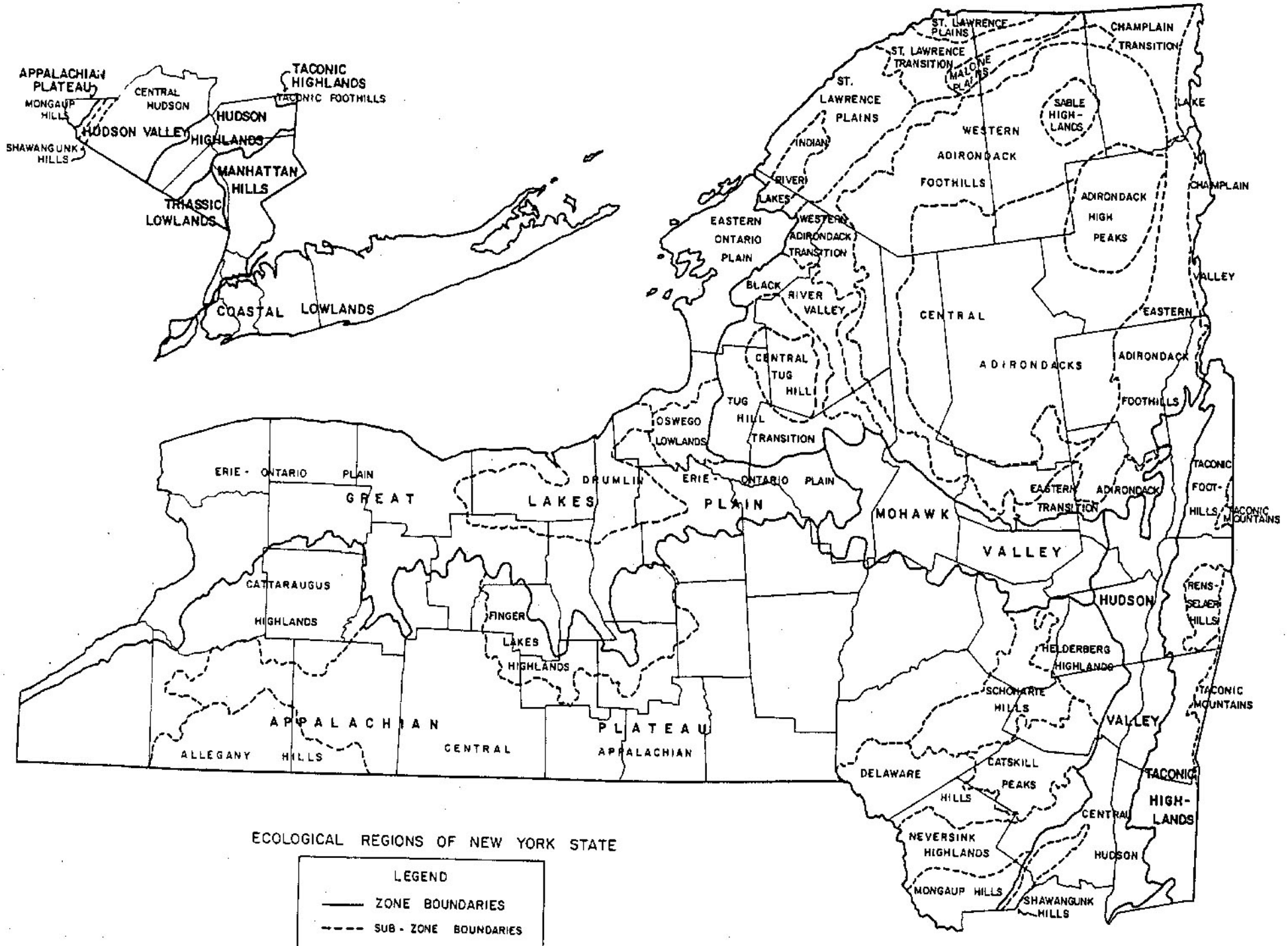
Will, Gary B., R. D. Stumvoll, R. F. Gotie and E. S. Smith. 1982. The Ecological Zones of Northern New York. New York Fish and Game Journal. 29(1):1-25.

APPENDICES

APPENDIX A

Major Ecological and Recreational Regions
of New York and Major Ecological and Demographic
Regions of the United States

Major Ecological Regions and Subzones of New York



ECOLOGICAL REGIONS OF NEW YORK STATE

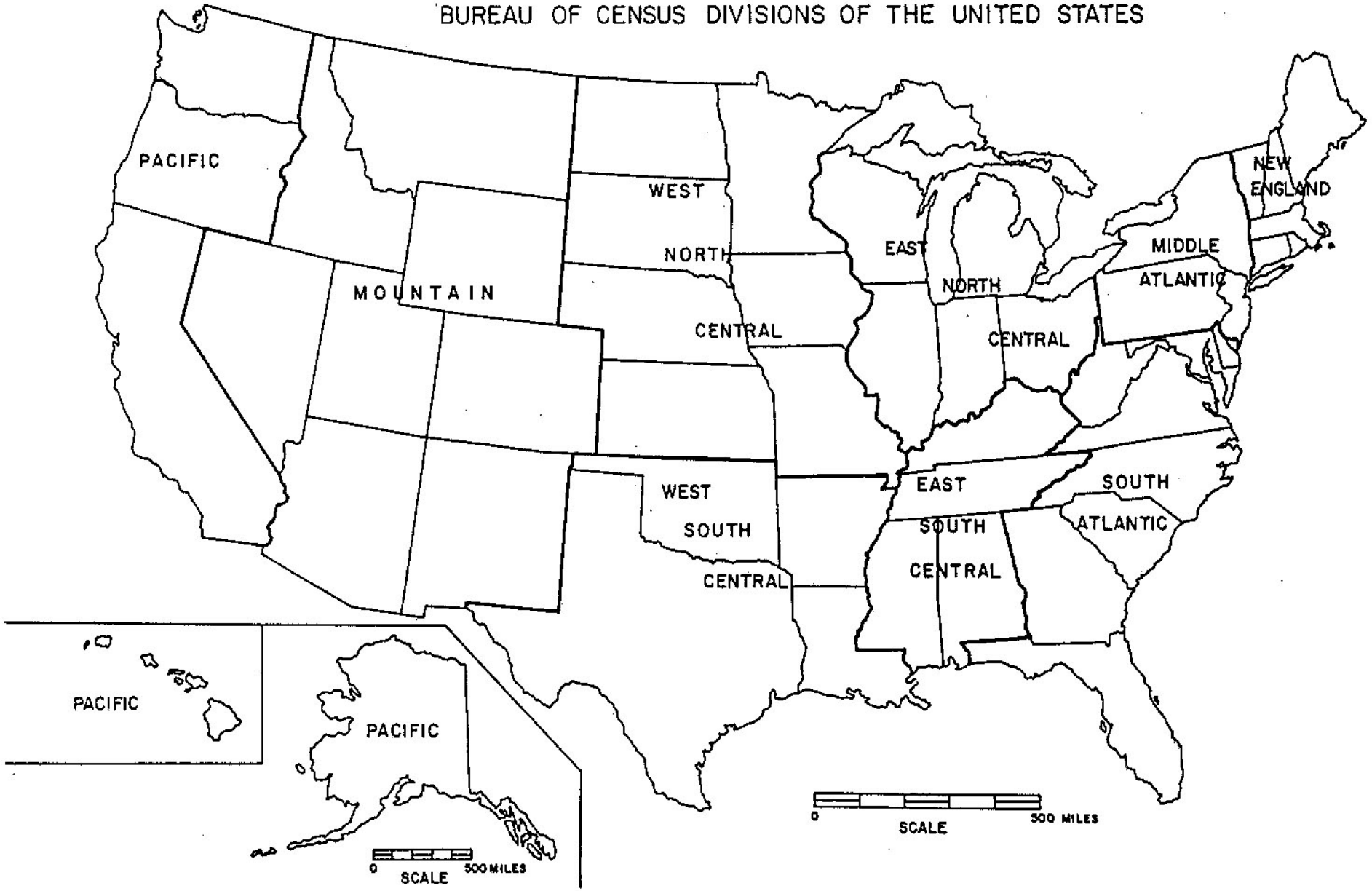
LEGEND

——— ZONE BOUNDARIES

- - - - SUB - ZONE BOUNDARIES

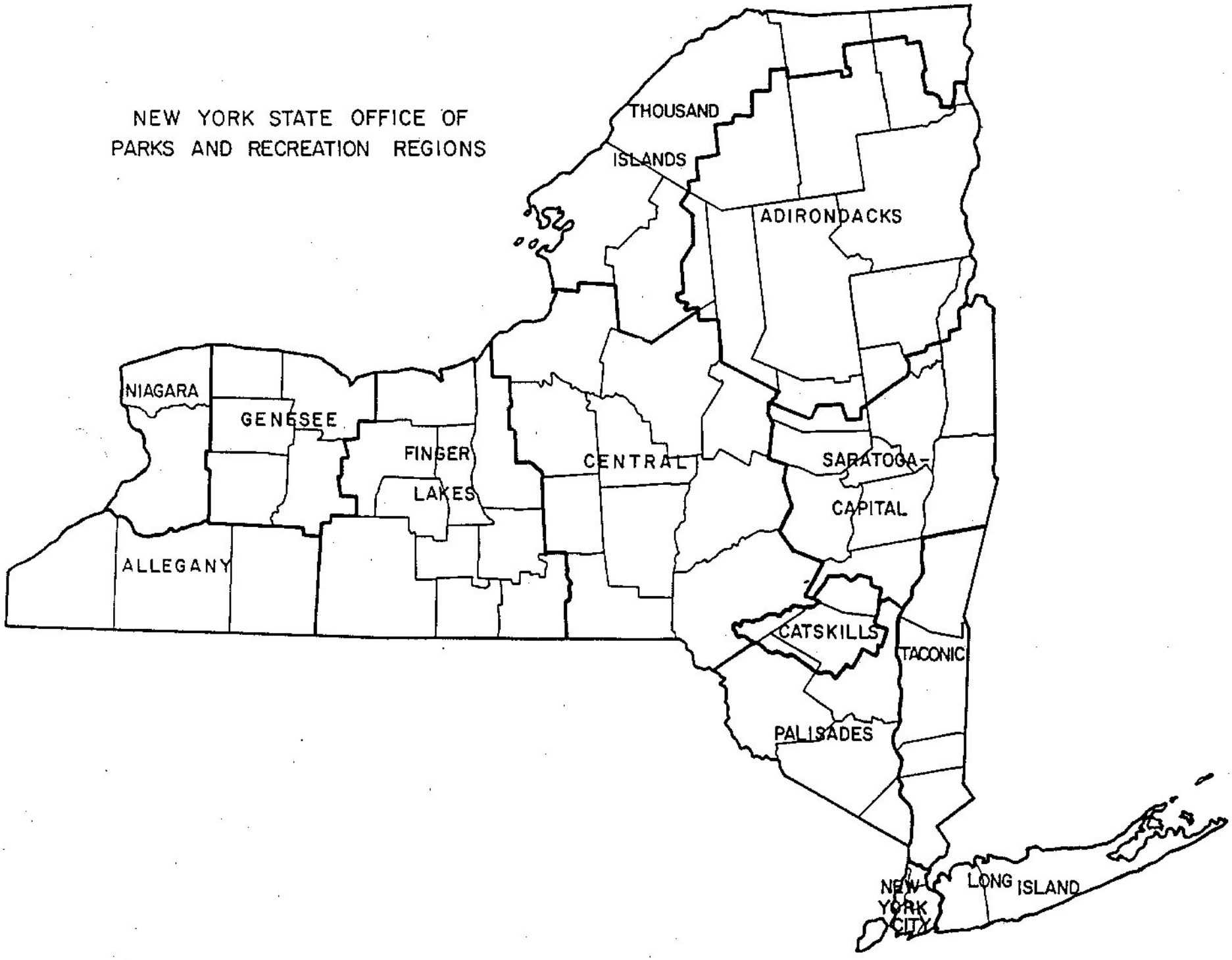
——— COUNTY LINES

Major Demographic Regions of the United States

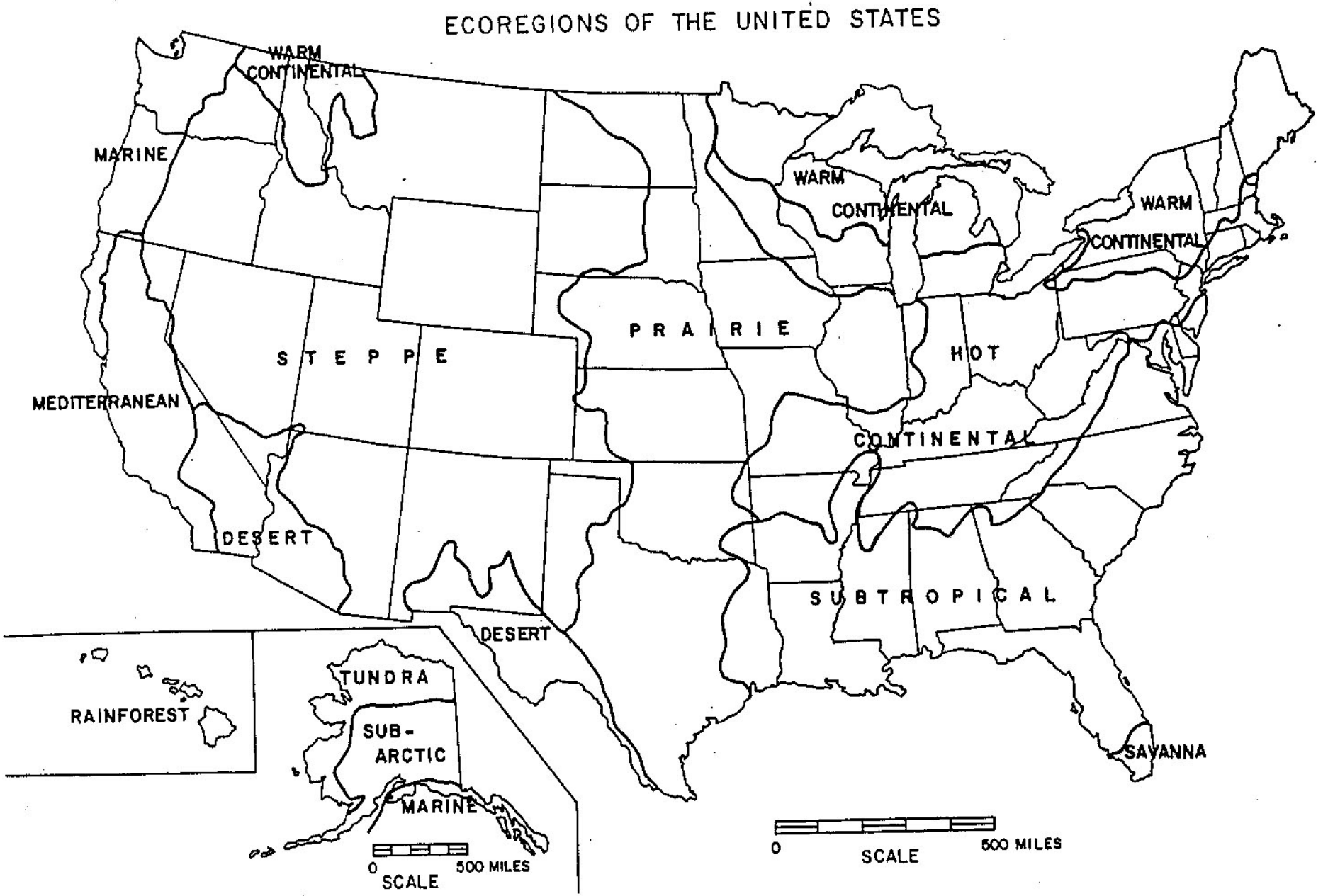

BUREAU OF CENSUS DIVISIONS OF THE UNITED STATES
PACIFIC
MOUNTAIN
WEST
NORTH
CENTRAL
WEST
SOUTH
CENTRAL
EAST
NORTH
CENTRAL
NEW
ENGLAND
MIDDLE
ATLANTIC
EAST
SOUTH
CENTRAL
SOUTH
ATLANTIC
0
SCALE
500 MILES
PACIFIC
PACIFIC
0
SCALE
500 MILES

Major Recreation Regions of New York

NEW YORK STATE OFFICE OF
PARKS AND RECREATION REGIONS



Major Ecological Regions of the United States


ECOREGIONS OF THE UNITED STATES
WARM CONTINENTAL
MARINE
WARM CONTINENTAL
WARM CONTINENTAL
PRAIRIE
STEPPE
HOT CONTINENTAL
MEDITERRANEAN
DESERT
SUBTROPICAL
DESERT
TUNDRA
RAINFOREST
SUB-ARCTIC
MARINE
SAVANNA
0 SCALE 500 MILES
0 SCALE 500 MILES

APPENDIX B

Endangered, Threatened and Special
Concern Species

ENDANGERED SPECIES

CLASS MOLLUSCA

Succinea chittenangoensis	Chittenango Ovate Amber Snail

CLASS INSECTA

Lycaeides melissa	Karner Blue Butterfly

CLASS PISCES

Acipenser brevirostrum	Shortnose Strugeon
Coregonus alpenae	Longjaw Cisco
Prosopium cylindraceum	Round Whitefish
Notropis anogenus	Pugnose Shiner
Ammocrypta pellucida	Eastern Sand Darter
Etheostoma camurum	Bluebreast Darter
Percina evides	Gilt Darter
Stizostedion vitreum glaucum	Blue Pike
Cottus ricei	Spoonhead Sculpin
Myoxocephalus thompsoni	Deepwater Sculpin

CLASS AMPHIBIA

Ambystoma tigrinum	Tiger Salamander

CLASS REPTILIA

Clemmys muhlenbergi	Bog Turtle
Dermochelys coriacea	Leatherback Sea Turtle
Eretmochelys imbricata	Hawksbill Sea Turtle
Lepidochelys kempii	Atlantic Ridley Sea Turtle
Sistrurus catenatus	Massasauga

CLASS AVES

Aquila chrysaetos	Golden Eagle
Haliaeetus leucocephalus	Bald Eagle
Falco peregrinus	Peregrine Falcon
Numenius borealis	Eskimo Curlew
Sterna albifrons	Least Tern
Sterna dougallii	Roseate Tern
Lanius ludovicianus	Loggerhead Shrike

ENDANGERED SPECIES (CONT.)

CLASS MAMMALIA

Myotis sodalis	Indiana Bat
Physeter catodon	Sperm Whale
Balaenoptera borealis	Sei Whale
Balaenoptera musculus	Blue Whale
Balaenoptera physalus	Finback Whale
Megaptera novaeangliae	Humpback Whale
Balaena glacialis	Right Whale
Canis lupus	Gray Wolf
Felis concolor	Cougar

THREATENED SPECIES

CLASS PISCES

Acipenser fulvescens	Lake Sturgeon
Hiodon tergisus	Mooneye
Erimyzon sucetta	Lake Chubsucker
Acantharchus pomotis	Mud Sunfish
Lepomis megalotis	Longear Sunfish

CLASS AMPHIBIA

Acris crepitans	Cricket Frog

CLASS REPTILIA

Kinosternon subrubrum	Mud Turtle
Emydoidea blandingi	Blanding's Turtle
Caretta caretta	Loggerhead Sea Turtle
Chelonia mydas	Green Sea Turtle
Crotalus horridus	Timber Rattlesnake

CLASS AVES

Pandion haliaetus	Osprey
Buteo lineatus	Red-shouldered Hawk
Circus cyaneus	Northern Harrier
Dendragapus canadensis	Spruce Grouse
Charadrius melodus	Piping Plover
Sterna hirundo	Common Tern

CLASS MAMMALIA

Neotoma floridana	Eastern Woodrat

SPECIES OF SPECIAL CONCERN

CLASS PISCES

Hybopsis storeriana	Silver Chub
Hybopsis x-punctata	Gravel Chub
Notropis heterodon	Blackchin Shiner
Moxostoma duquesnei	Black Redhorse
Percina macrocephala	Longhead Darter

CLASS AMPHIBIA

Rana sphenocephala	Southern Leopard Frog
Cryptobranchus alleganiensis	Hellbender
Ambystoma jeffersonianum	Jefferson Salamander
Ambystoma laterale	Blue-spotted Salamander
Ambystoma maculatum	Spotted Salamander

CLASS REPTILIA

Clemmys guttata	Spotted Turtle
Clemmys insculpta	Wood Turtle
Malaclemys terrapin	Diamondback Terrapin
Carphophis amoenus	Worm Snake
Heterodon platyrhinos	Eastern Hognose Snake

CLASS AVES

Gavia immer	Common Loon
lxobrychus exilis	Least Bittern
Accipiter cooperii	Cooper's Hawk
Laterallus jamaicensis	Black Rail
Bartramia longicauda	Upland Sandpiper
Chlidonias niger	Black Tern
Tyto alba	Barn Owl
Asio flammeus	Short-eared Owl
Chordeiles minor	Common Nighthawk
Corvus corax	Common Raven
Cistothorus platensis	Short-billed Marsh Wren
Sialia sialis	Eastern Bluebird
Ammodramus henslowii	Henslow's Sparrow
Ammodramus savannarum	Grasshopper Sparrow
Pooecetes gramineus	Vesper Sparrow

CLASS MAMMALIA

Myotis leibii	Small-footed Bat
Sylvilagus transitionalis	New England Cottontail
Phocoena phocoena	Harbor Porpoise

APPENDIX C

Sample Application of the Rating System

GRAND BAY

LOCATION AND DESCRIPTION OF HABITAT:

Grand Bay encompasses approximately 1,200 acres on the eastern shore of the Hudson River, one half mile south of the Village of Rhinecliff in the town of Rhinebeck, Dutchess County (7.5' Quadrangle: Kingston East, N.Y.).

The area is comprised of many acres of tidal influenced freshwater marsh, flooded timber, bays, shallows and streams, and adjacent upland hardwood forests and fallow fields.

FISH AND WILDLIFE VALUES:

The area is ecologically unique as the largest tidal influenced freshwater bay and wetland complex surrounded by undeveloped land on the Hudson River. A tremendous variety of fish and wildlife are found in the area, including a relatively large number of rare species. Grand Bay is important to a variety of fish species in the Hudson River for feeding, spawning and nursery activities. Several commercially important fish species use the bay and the mouths of Mud Creek and the Grand Kill for spawning and feeding. These include striped bass, alewife and blueback herring. Common freshwater species using the bay include largemouth bass, smallmouth bass, white perch and various minnows. Species that appear to be regionally rare that have been found in the bay include American brook lamprey, central mudminnow, northern hog sucker and bridle shiner. The shortnose sturgeon (E) feeds in the tidal channels of the bay, creek mouths and river shallows. An extremely large population of snapping turtles exists in the bay.

Grand Bay supports breeding populations of least bittern (SC), Virginia rail, marsh wren (formerly, long-billed marsh wren), and in some years, sora rail, common moorhen (formerly, common gallinule), and occasionally king rail. Many species of waterfowl use the area during the spring and fall migration for resting and feeding. The osprey (T) was reported as nesting in the area circa 1960, and currently is often observed during spring and fall migration. The bald eagle (E) is an occasional visitor.

At least two rare plant species occur in the wetland complex. These are the heartleaf plaintain (proposed for Federal endangered status) and golden-club.

Waterfowl hunting and muskrat trapping have been traditional outdoor recreational activities at Grand Bay over the years. Fishing for striped bass and largemouth and smallmouth bass in the bay is enjoyed by the local populous. These activities in combination with nature study and bird watching produce an estimated 6,600 user days of wildlife related recreational opportunity each year.

It is anticipated that if access improvements were made and trail development occurred, recreational use of the area would increase. Ongoing ecological research at Grand Bay has attracted scientists and students from many areas of the State.

Coastal Fish & Wildlife Habitat Rating Form

Name of Area: Grand Bay

County(ies): Dutchess

Town(s): Rhinebeck

7.5' Quadrangle(s): Kingston East

	(IS) Individual Score		(R) Replaceability		(ISxR) Final Score
ECOSYSTEM RARITY (ER): Large undeveloped tidal influenced freshwater wetland complex is rare in New York (64).	64	x	1.2	=	76.8
SPECIES VULNERABILITY (SV); Shortnose sturgeon (E) and least bittern (SC) Additive Division (36+16/2).	44	x	1.2	=	52.8
HUMAN USE (HU): Wide variety of recreational uses for residents of Dutchess county, and some limited use by residents of neighboring counties. Geometric mean ($\sqrt{}$9x4).	6	x	1.2	=	7.2
POPULATION LEVEL (PL): Concentrations of various bird species and snapping turtles are unusual in the Hudson Valley ecological region (9).	9	x	1.2	=	10.8
REPLACEABILITY (R): Irreplaceable			1.2		
SIGNIFICANCE = [(ERxR)+(SVxR)+(HUxR)+(PLxR)]				=	147.6

Recommendation

The above habitat example would be recommended to DOS for designation based upon the rating scores. The ER or the SV scores alone would qualify the area for designation in this example even if the replaceability value was 0.4.

APPENDIX D

Sample Nomination Forms

Significant Coastal Fish and Wildlife Habitat

*   *   *   *   *

SAMPLE　　NOMINATION　　*SAMPLE*

1. Name of area: Dunkirk Harbor

= =

2. Location of area:

   a) Distance and direction from known location (e.g. “one half mile northwest of Centertown”)

      Directly North of the City of Dunkirk, NY

   b) County and town: Chautauqua County, City of Dunkirk

   c) USGS quadrangle: Dunkirk and North of Dunkirk, NY

NOTE: If possible, attach map (e.g. USGS 7 1/2' topographic quad) showing location of area.

= =

3. Approximate size (acres): 372

= =

4. Reason for considering a Significant Coastal <u>Fish</u> and <u>Wildlife</u> Habitat:

Smallmouth bass, white bass, and rainbow trout are abundant in the harbor year round. It is an important concentration area for rainbow trout and coho salmon in the spring because of the warmwater discharge produced by a power generation facility. Also attracted during the spring are gizzard shad and emerald shiner, important forage for the salmonids.

This area is a major year round concentration area for great black-backed, ring-billed, and herring gulls.

Dunkirk Harbor is important as a waterfowl wintering area most notable for populations of black ducks, mallards, scaup, goldeneye, old squaw, canvasback, redheads, and American coot.

Northern pike and muskellunge are important species for recreational fishing in the harbor.

Significant Coastal Fish and Wildlife Habitat
*   *   *   *   *

SAMPLE NOMINATION *SAMPLE*

5. Other information about area (e.g. rarity of area; fish and wildlife related recreational, educational, or commercial use; replaceability; covertype; ownership):

   Recreational Use: Fishing, birdwatching.
   Covertype: Open water, maintained in winter by a warm water discharge.

   Areas supporting fish and wildlife species such as this are rare in the New York State waters of Lake Erie.

= =

6. More information on this area is available from the following source(s): (Name, address & phone number)

   Bob Lange
   Lake Erie Fisheries Unit
   178 Point Drive North
   Dunkirk, NY 14048 Phone: (716) 366-0228

= =

Date of Nomination: September 27, 1983

Submitted by: Anne Brownell

Affiliation: Significant Habitat Unit
N.Y.S.D.E.C.
Wildlife Resources Center
Delmar, NY 12054

= =

-Use reverse side for continuation if needed-
-If available, enclose other material on this area-

RETURN THIS REPORT TO:

James W. Morton
Coastal Resources Specialist
N.Y.S. Department of State
162 Washington Avenue
Albany, NY 12231

Significant Coastal Fish and Wildlife Habitat

*   *   *   *   *

NOMINATION

---

1. Name of area:

= =

2. Location of area:

   a) Distance and direction from known location (e.g. “One half mile northwest of Centertown”)

   b) County and town:

   c) USGS quadrangle:

NOTE: If possible, attach map (e.g. USGS 7 1/2' topographic quad) showing location of area.

= =

3. Approximate size (acres):

= =

4. Reason for considering a Significant Coastal <u>Fish</u> and <u>Wildlife</u> Habitat:

Significant Coastal Fish and Wildlife Habitat
*   *   *   *   *
NOMINATION

5. Other information about area (e.g. rarity of area; fish and wildlife related recreational, educational, or commercial use; replaceability; covertype; ownership):

==

6. More information on this area is available from the following source(s): (Name, address & phone number)

==

Date of Nomination:

Submitted by:

Affiliation:

==

-Use reverse side for continuation if needed-
-If available, enclose other material on this area-

RETURN THIS REPORT TO:

James W. Morton
Coastal Resources Specialist
N.Y.S. Department of State
162 Washington Avenue
Albany, NY 12231

APPENDIX E

Individuals, Organizations and Agencies
Who Were Sent the Draft Technical
Memorandum To Review
in 1983 & 1984

Note: The following names and addresses are not current. The list represents a record of comment from 1983 & 1984.

FEDERAL GOVERNMENT

Department of Agriculture

Mr. Peter C. Meyers, Chief
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890
Washington, D.C. 20013

Mr. Warren Zitzman
U.S. Department of Agriculture
Soil Conservation Service
14th & Independence Avenues, NW
Washington, D.C. 20585

Army Corps of Engineers-Buff.

Mr. James Bennet, Chief
Environmental Resources Section
U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, NY 14207

Colonel Robert R. Hardiman
District Commander, Buffalo Dist.
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207

Army Corps of Engineers-N.Y.

Colonel Benn
U.S. Army Corps of Engineers
New York District
26 Federal Plaza
New York, NY 10278

Dr. Dennis Suszkowski
Operations Division
U.S. Army Corps of Engineers
New York District
26 Federal Plaza
New York, NY 10278

Atlantic States Marine Fisheries Commission

Ms. Debbie Middledorf
Atlantic States Marine
Fisheries Commission
1717 Massachusetts Avenue, NW
Washington, D.C. 20036

Coast Guard

J. R. Kirkland, Chief of Staff
Department of Transportation
Ninth Coast Guard District
1240 East Ninth Street
Cleveland, OH 44199

Mr. Jay Silberman
District Planning Office
United State Coast Guard
Third Coast Guard District
Governors Island
New York, NY 10004

Department of Energy

Mr. Robert Stearn, Director
Office of Environmental Compliance
U.S. Department of Energy - 4G064
1000 Independence Avenue, SW
Washington, D.C. 20585

Environmental Protection Agency

Ms. Ann Miller
U.S. Environmental Protection
Agency, Region II
26 Federal Plaza
New York, NY 10007

Mr. Wallace Stickney
U.S. Environmental Protection
Agency, Region I
John F. Kennedy Federal Building
Room 2203
Boston, MA 02203

Federal Energy Regulatory Commission

Dr. Carl Shuster
Federal Energy Regulatory Comm.
400 1st Street, NW, Rm. 304
Washington, D.C. 20426

Fish and Wildlife Service

Mr. Paul Hamilton
U.S. Fish and Wildlife Service
100 Grange Place
Cortland, NY 13045

General Services Administration

Mr. William Diamond
Regional Administrator
U.S. General Services Adminis.
23-102 J.K. Javits Federal Bldg.
New York, NY 10278

Great Lakes Commission

Dr. Albert G. Ballert
Director of Research
Great Lakes Commission
2200 Bonisteel Boulevard
Ann Arbor, MI 48105
(For Great Lakes Issues Only)

Department of Housing and Urban Development

Ms. Celeste Bruckman
U.S. Department of Housing and
Urban Development, Buff. Office
The Mezzanine, Statler Building
107 Delaware Avenue
Buffalo, NY 14202

Mr. Truman Goins
Coastal Zone Management Coordinator
U.S. Department of Housing and
Urban Development, Rm. 5136
Washington, D.C. 20410

Department of the Interior

Mr. Richard Barnett
U.S. Department of the Interior
26 Federal Paza, Suite 32-120
New York, NY 10007

Environmental Compliance Office
National Park Service
U.S. Department of the Interior
18th & C Streets, NW
Washington, D.C. 20240

Mr. Paul Stang
PPA, Rm 4424 (Phil Metzger)
U.S. Department of the Interior
18th & C streets, NW
Washington, D.C. 20240

Marine Fisheries Service

Chris Mantzaris
National Marine Fisheries Service
7 Pleasant Street
Gloucester, MA 01930

National Oceanic and Atmospheric Administration

Mr. Stanley Chanesman
NOAA - Office of Marine Pollution Assessment
Old Biology Building
SUNY at Stonybrook
Stonybrook, NY 11794

Sea Grant

Dr. Donald Squires
NYS Sea Grant Institute
411 State Street
Albany, NY 12246

Department of Transportation

Mrs. Janice Jackson, Management Analyst
St. Lawrence Seaway Development Corp.
U.S. Department of Transportation
Federal Building 10A, R. 836 F
800 Independence Avenue, SW
Washington, D.C. 20950

Mr. Eugene Lehr, Chief
Environmental Division P-37, Rm. 9400
U.S. Department of Transportation
400 7th Street, SW - 7th & D
Washington, D.C. 20590

STATE GOVERNMENT

Office of Parks, Recreation
Historic Preservation

Mr. Ivan Vamos
Deputy Commissioner
Office of Parks, Recreation &
Historic Preservation
Agency Building 1
Empire State Plaza
Albany, NY 12238

St. Lawrence - Eastern Ontario
Commission

Mr. Tom Cutter
St. Lawrence - Eastern Ontario
Commission
317 Washington Street
Watertown, NY 13601

Department of Environmental
Conservation

(Distribution below)
50 Wolf Road
Albany, NY 12233-0001

1. Chief, Bureau of Environmental Protection
2. Chief, Bureau of Fisheries
2. Chief, Bureau of Wildlife
4. Regional Fisheries Manager (Regions 1, 3-9)
5. Regional Wildlife Manager (Regions 1, 3-9)
6. Director, Region 2 (New York City)
7. Director, Division of Marine Resources (Stony Brook)

REGIONAL COUNTY GOVERNMENTS

Albany County

Mr. Lawrence Smith, Director
Albany County Planning Board
Stedman House, 1 Lodge Street
Albany, NY 12207

Capital District

Mr. C. Chen, Executive Director
Capital District Regional
Planning Commission
251 River Street
Troy, NY 12180

Cayuga County

Mr. James S. Carr, Director
Cayuga County Planning Board
County Office Building
Auburn, NY 13021

Central New York

Mr. Gary G. Hayes, Exec. Director
Central New York Regional
Planning & Development Board
Midtown Plaza, 700 East Water St.
Syracuse, NY 13210

Chautauqua County

Mr. John Luensman, Director
Chautauqua County Planning
Department
County Office Building
Mayville, NY 14757

Columbia County

Mr. Roland Vosburgh
Columbia County Department
of Planning
414 Union Street
Hudson, NY 12534

Dutchess County

Commissioner
Dutchess County Department of Planning
47 Cannon Street
Poughkeepsie, NY 12601

Erie County

Mr. George Schanzenbacker
Deputy Commissioner
Erie County Department of
Planning & Environment
95 Franklin Street
Buffalo, NY 14202

Erie/Niagara

Mr. Leo J. Nowak, Jr., Director
Erie-Niagara Regional Planning
Board
Northtown Plaza, 3103 Sheridan Dr.
Amherst, NY 14226

Genesee/Finger Lakes

Mr. Glenn R. Cooke, Director
Genesee/Finger Lakes Regional
Planning Council
33 South Washington Street
Rochester, NY 14608

Greene County

Mr. Larry Beigle
Green County Planning Department
Mountain Avenue
Cairo, NY 12413

Hudson Valley

Mr. Louis V. Mills, Director
Hudson Valley Regional Council
16 Randall Heights
Middletown, NY 10940

Jefferson County

Mr. Robert McNary, Director
Jefferson County Department
of Planning
175 Arsenal Street
Watertown, NY 13601

Long Island

Dr. Lee E. Koppelman
Executive Director
Long Island Regional Planning
Board
Veterans Memorial Highway
Hauppauge, NY 11787

Monroe County

Mr. Don B. Martin, Director
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Friends of the Earth

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APPENDIX F

Response to Comments on the Draft Technical Memorandum

COMMENT 1: Nomination, evaluation, public review and designation procedures need better explanations.

RESPONSE: Agree. See Section II of the Technical Memorandum.

COMMENT 2: (Several reviewers, in addition to commenting on the Technical Memorandum, suggested particular sites to evaluate.

RESPONSE: See Section II A of the Technical Memorandum for procedures to nominate areas for DEC to evaluate.

COMMENT 3: The rating system should be finalized and the actual designation prodedure begin as soon as possible.

RESPONSE: Agree.

COMMENT 4: The procedure used to identify boundaries needs better explanation.

RESPONSE: Agree. See Section 1 of the Technical Memorandum.

COMMENT 5: The subtraction modifying technique does not appear to be necessary.

RESPONSE: Agree. The subtraction modifying technique has been eliminated and geometric mean will be used in its place.

COMMENT 6: Rare and endangered plant habitats should also be considered for designation.

RESPONSE: The Waterfront Revitalization and Coastal Resources Act authorizes work only on fish and wildlife habitats. An amendment to the Act would be required to address the rare plant issue. See section 1 of the Technical Memorandum.

COMMENT 7: Was a review made of the literature for other similar rating systems?

RESPONSE: Literature reviews were made prior to the development of the initial rating system presented in Breisch (1981). Very little published information exists on this topic; however, the U.S. Fish and Wildlife Service has developed “Habitat

Evaluation Procedures" (HEP) which is used to evaluate habitats. DEC reviewed HEP and found that the process requires data which is much more detailed than what is readily available in the coastal regions of New York. Also, the HEP process would be much more time consuming than what is required for our purposes. Other documents that were reviewed are listed in Section VI of the Technical Memorandum.

COMMENT 8: Will there be other methods to designate fish and wildlife habitats, and if so, will DEC staff be involved in review of these recommendations?

RESPONSE: The only method by which an area will be designated is that described in the Technical Memorandum. DEC staff will conduct all evaluations. See Section II - G of the Technical Memorandum.

COMMENT 9: The rating system only focuses on fish and wildlife which are currently vulnerable and does not make provisions to ensure the protection of species not currently listed by DEC.

RESPONSE: Emphasis is placed on habitats which support endangered, threatened or special concern species. The establishment of the special concern list by DEC is an attempt to ensure that these species do not become endangered or threatened in the future. DEC can change the list by adding or upgrading species in the future. Protection of rare ecosystems through the use of the Ecosystem Rarity (ER) criterion will help to prevent species from becoming threatened or endangered and will help to protect species which may be rare but have not been listed by DEC. For example, the status of many invertebrate species has not been investigated to date.

COMMENT 10: There does not appear to be a mechanism to designate potentially significant areas, or areas which were formerly significant whose significance could be restored.

RESPONSE: The rating system evaluates actual conditions and does not account for speculation based upon natural or man-influenced restoration; however, since the evaluation and designation process is ongoing (see Section II - G, of the Technical Memorandum) areas that are restored in the future may be evaluated and designated at a later date. In addition, areas which are not designated may also have very real fish and wildlife values which should be addressed during environmental review of proposed actions. Fish and wildlife values are not confined to the habitats designated.

COMMENT 11: Is the geometric mean modifying technique necessary, and if so, why was geometric mean chosen over other techniques?

COMMENTS AND DEC RESPONSES (CONT.)

RESPONSE: It is appropriate to incorporate some type of modifying technique to help make distinctions in the ratings between similar habitats and/or the abundance of a habitat type within a geographic area. This, in fact, makes the rating system more responsive to actual environmental conditions. See Section III - B 3a. for a discussion on the use of geometric mean.

COMMENT 12: Use of the modifying techniques needs to be explained in more detail.

RESPONSE: Agree. Se Section III - B 3 of the Technical Memorandum.

COMMENT 13: Review of the rating system should be broadened.

RESPONSE: Disagree. Opportunities to comment on the Draft Technical Memorandum were adequate. See Appendix E.

COMMENT 14: The rating system is biased towards terrestrial wildlife species.

RESPONSE: Disagree. The rating system considers all species of fish and wildlife with additional emphasis on endangered, threatened and special concern listed species. The list includes aquatic species.

COMMENT 15: Additional explanation is needed to stress that the rating system is not a statistically sound method to rank habitats numerically and that the score assigned is not a measurable value.

RESPONSE: We agree that the score is not a measurement. Rather, it is a translation of identifiable fish and wildlife values into a numerical system for purposes of comparison and evaluation. The technical discipline of statistics is only marginally relevant to the purposes of the system. Even though differences of a few points in the total significance score between habitats may not reflect substantial differences between these areas, larger point spreads certainly reflect real differences between habitats, which often can be identified.

COMMENT 16: The levels assigned to the criteria need better explanation.

RESPONSE: Agree. See Section III - B2 of the Technical Memorandum.

COMMENT 17: The explanation and discussion of the five criteria for evaluation should be expanded.

RESPONSE: Agree. See Section III - A of the Technical Memorandum.

COMMENTS AND DEC RESPONSES (CONT.)

COMMENT 18: There is no mechanism to address habitat vulnerability.

RESPONSE: Disagree. The priorities for evaluation of areas considers the "urgency for protection" which is equivalent to habitat vulnerability. Se Section II - B of the Technical Memorandum.

COMMENT 19: Expanded discussion and explanation of the threshold is needed.

RESPONSE: Agree. See Section III - C of the Technical Memorandum.

COMMENT 20: The rating system does not address the physical and chemical aspects of an ecosystem and their importance in determining use by fish and wildlife species.

RESPONSE: These aspects are considered to a degree in assessing the ecosystem rarity of a habitat. Data concerning physical and chemical parameters often is not readily available for coastal habitats. Whenever this type of information is available it will be incorporated in the impact assessment section of the project narrative.

COMMENT 21: The use of vulnerable species for the SV criterion does not appear to be necessary.

RESPONSE: Agree. Vulnerable species have been deleted from the SV criterion.

COMMENT 22: Provisions need to be made to account for introduced species, hybrids, subspecies and subspecific forms if they are threatened or endangered species.

RESPONSE: Agree, however, DEC's list of endangered, threatened and special concern species will be the only fish and wildlife evaluated for the SV criterion. In order to be considered, an introduced species, hybrid, subspecies or subspecific form must first become listed by DEC.

COMMENT 23: The SV criterion does not account for the interdependence of species using an area.

RESPONSE: Agree, however, the PL and especially the ER criteria do address this. For example, the concentration of a species in an area may be dependent upon a short term abundance of another species which is used as forage.

COMMENT 24: The SV criterion should be given greater weight.

RESPONSE: Disagree. If any listed species is present on a habitat the area would automatically be recommended for designation if replaceability is at least 1.0.

COMMENT 25: The human use of an area should be considered beyond the area's boundary, especially when the area contributes to the human use of a much larger ecosystem such as the Great Lakes.

RESPONSE: Agree. See Section III - A 3 of the Technical Memorandum.

COMMENT 26: The HU county level score is too low because it does not account for subsistence values.

RESPONSE: Subsistence values may be accounted for by using the geometric mean modifying technique. See Section III - B 3 of the Technical Memorandum.

COMMENT 27: It is not appropriate to use the "management techniques" aspect in the replaceability criterion.

RESPONSE: Disagree. If a habitat is easily managed and as a result may be easily replaced, the urgency for protecting the area should be lower than for another area which cannot be easily replaced.

COMMENT 28: Replaceability should be used on an extremely limited basis or eliminated from the system.

RESPONSE: Significant habitats are almost by definition unlikely to be easily replaced so that replaceability will be of limited influence. Areas that can easily be replaced, however, should be considered less urgent to protect. Replaceability is a valuable criterion to identify the necessity for protection.

COMMENT 29: DEC should give equal weight to both game and nongame species.

RESPONSE: Agree. See Section 1 of the Technical Memorandum.

Federal Government

General Services Administration, Region 2 - New York
See Comment(s): 1

Department of the Army, Corps of Engineers, Buffalo District - Buffalo
See Comment(s): 1

Department of the Interior, Fish and Wildlife Service - Cortland
See Comment(s): 16, 19

Department of Agriculture, Soil Conservation Service - Washington, D.C.
See Comment(s): 16, 17

State Government

Department of Environmental Conservation

a. Great Lakes Fisheries Research Stations - Cape Vincent and Dunkirk
See Comment(s): 4, 14, 22

b. Region 4 Fisheries Office - Stamford
See Comment(s): 9, 20, 25

c. Region 4 Wildlife Office - Stamford
See Comment(s): 28

d. Region 7 Fisheries Office - Cortland
See Comment(s): 1, 8

e. Division of Fish and Wildlife, Bureau of Environmental Protection - Albany
See Comment(s): 5, 6, 7, 11, 12, 13, 15, 16, 17, 21

St. Lawrence - Eastern Ontario Commission - Watertown
See Comment(s): 1, 4, 16, 17, 18

Northeastern Queens Nature and Historic Preserve Commission - New York
See Comment(s): 2

Regional/County Governments

Albany County Environmental Management Council - Albany
See Comment(s): 1, 5, 6, 7, 11, 16, 17, 21

Monroe County Environmental Management Council - Rochester
See Comment(s): 2

Town Governments

Town of Babylon - Lindenhurst
See Comment(s): 2, 29

Conservation and Environmental Organizations

Environmental Planning Lobby - Albany
See Comment(s): 1, 2

Friends of the Earth - New York
See Comment(s): 1, 2

Natural Resources Defense Council, Inc. - New York
See Comment(s): 1, 3, 10, 15, 16, 17, 22, 24

Hudson River Sloop Clearwater, Inc. - Poughkeepsie
See Comment(s): 1, 10, 17, 23, 26, 27

National Audubon Society, New York State Office - Delmar
See Comment(s): 1

Scenic Hudson, Inc. - Poughkeepsie
See Comment(s): 1, 3, 28

Udalls Cove Preservation Committee, Inc. - New York
See Comment(s): 2

APPENDIX G

Procedures for Updating the Significant Coastal Fish and Wildlife Habitat Narratives

PROCEDURES FOR UPDATING SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT DESIGNATIONS

The first Significant Coastal Fish and Wildlife Habitat (SCFWH) areas were designated in 1987 following procedures outlined in the Technical Memorandum: Procedures Used to Identify, Evaluate, and Recommend Areas for Designation as Significant Coastal Fish and Wildlife Habitats (Ozard, 1984), prepared for the New York State Department of State by the Significant Habitat Unit Staff of the Department of Environmental Conservation. These SCFWH areas were never systematically reviewed and updated during the ten-year period following their designation. The dynamic nature of the coastal environment, its biological communities, and the changing patterns in human use make it imperative that systematic updating of the SCFWH areas occurs to maintain a high standard of accuracy and the subsequent utility of these designations to the coastal community.

The Technical Memorandum states that the Waterfront Revitalization and Coastal Resources Act (WRCR) of 1981 provides for continuous updating of information in the Significant Coastal Fish and Wildlife Habitats using the procedures outlined in the Technical Memorandum for the identification, evaluation, and designation of SCFWH areas (Section II, Parts A-G). New areas may be nominated and designated and existing areas may be modified or the designation repealed. The Technical Memorandum notes that changes in the NYCRR regarding the Endangered, Threatened or Special Concern Species lists could require repeal of previous designations or re-evaluation of areas not previously qualifying for designation. The procedures cited in the Technical Memorandum encompass steps to identify areas for evaluation, set priorities for evaluation, review and evaluate areas, make recommendations, hold public hearings, and designate areas.

The procedure outlined in the Addendum is based on the process outlined in the Technical Memorandum and was developed to provide specific guidance on updating existing Significant Coastal Fish and Wildlife Habitat designations. The generic procedures provided in the Technical Memorandum are tailored for the identification and evaluation of new SCFWH sites. The additional guidance provided below is necessary to facilitate regular updating of the designations, and to standardize the types of information collected and format of the narratives for SCFWH areas statewide when updating is implemented.

A. Identification of Areas to Evaluate for Possible Revision

A total of 249 Significant Coastal Fish and Wildlife Habitat areas have been designated according to the Technical Memorandum guidelines as of this writing. Areas selected for evaluation for the purpose of updating will be selected from the existing areas. See Part B "Setting Priorities for Evaluation" for criteria assisting in SCFWH area prioritization.

During the updating process, identification of additional areas for designation under the Significant Coastal Fish and Wildlife Habitat program may occur. These areas should then be subject to the procedures used to identify and designate SCFWHs outlined in the Technical Memorandum (Section II, Parts A-G).

B. Setting Priorities for Evaluation

Criteria for setting evaluation priorities for new site designations are outlined in the Technical Memorandum (Part B): 1) ease and efficiency of reporting and evaluating; 2) urgency based upon the schedule for local waterfront revitalization plans and urgency for protection; and 3) preliminary qualitative judgement of areas likely to qualify for designation. For the purpose of updating existing designations, the following criterion should also apply: Evaluation of existing SCFWH areas statewide should proceed according to the order in which regional designations occurred. The earliest Significant Coastal Fish and Wildlife Habitat designations were accomplished in 1987 (Long Island region); as of this writing, the most recent designations occurred in 1994 (St. Lawrence County).

Region	Areas	State Designation	Federal Concurrence
Long Island	100	February 15, 1987	February 15, 1987
Hudson River	39	October 16, 1987	N ovember 28, 1990
Great Lakes	50	October 15, 1987	September 18, 1991
New York City	15	August 22, 1991	December 11, 1992
Jefferson County	17	July 26, 1993	June 22, 1994
St. Lawrence County	28	May 15, 1994	June 7, 1994

An initial round of updating has begun for Significant Coastal Fish and Wildlife Habitat areas in the Peconics and on the north shore of Long Island.

C. Review and Evaluation of Areas

The original designations were recommended by the Department of Environmental Conservation through the Significant Habitats Unit (SHU). Existing SCFWH areas will be updated and revised by Department of Environmental Conservation and Department of State Division of Coastal Resources staff, based on current existing documentation.

These sources should include at a minimum:

- federal agencies (*e.g.*, United States Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Environmental Protection Agency, United States Army Corps of Engineers),
- state agencies (*e.g.*, New York State Department of Environmental Conservation, New York State Office of Parks, Recreation, and Historic Preservation, New York State Department of Transportation, New York Natural Heritage Program),
- county, city, town, and village governmental agencies (including natural resources and planning departments, where applicable),
- non-governmental conservation organizations (*e.g.*, National Audubon Society-New York, The Nature Conservancy, others as appropriate),
- academic institutions (*e.g.*, State University of New York, others as appropriate),
- other stakeholders (*e.g.*, sportsmen's federations, charter boat associations), and
- citizens at large.

New data and updated information, including (where applicable) but not limited to surveys of breeding birds, shorebirds, waterfowl, finfish, shellfish, herpetofauna, sea turtles, marine mammals, listed species, and important plant communities, should be solicited from these entities with a data request letter. This letter should be followed by individual meetings (on a voluntary basis) with appropriate county, city, town, federal and/or state agencies to discuss the need for updating, sources of available data, possible improvements to narrative format and content, and site specific human use and impact information. Additional sources of information that should be researched include regional or resource-specific reports (*e.g.*, National Estuary Program studies).

The Department of State Division of Coastal Resources will revise the narratives for SCFWH areas, including description of the location of the habitat, the community of organisms utilizing the habitat, the biological, physical, and chemical parameters which should be considered for impact assessment, and the types of human activities likely to affect the habitat, based on information received. Numerical values that should be recalculated and reported in the SCFWH narratives include: ten-year average abundance (by species), average abundance for all years (by species), year(s) of peak abundance (by species), and year(s) of least abundance (by species). A qualitative analysis of trends (as opposed to reporting yearly data) in species abundance, intensity of human use, or other factors is useful.

D. Recommending Revisions

The Department of Environmental Conservation and Department of State Division of Coastal Resources will recommend revisions to the appropriate Federal, State, and local government agenices, non-governmental organizations, and citizens. The recommended revisions package will contain the rating form, the project narrative, and the boundary delineated in standard SCFWH map format. Additional supporting documentation will also be included where appropriate.

E. Public Hearing

Public hearings are required for designating new Significant Coastal Fish and Wildlife Habitat areas. Periodic revision of existing SCFWH areas will not normally require public hearings.

F. Filing Revised Narratives and Maps

Copies of the revised narratives and maps are to be filed with the clerk of each county and local government within whose jurisdiction the areas are wholly or partially located. Additional copies of the revised narratives and maps will be provided to appropriate state and federal agencies. Instructions will accompany the documents to discard or return previously filed Significant Coastal Fish and Wildlife Habitat information.