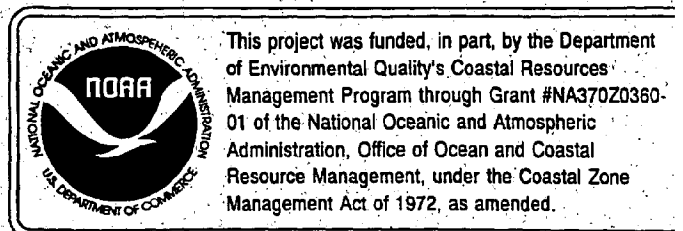


# COMMONWEALTH of VIRGINIA

## Production and Distribution of Natural Resource Maps and Information Final Report

Submitted to:  
Virginia Department of Environmental Quality

Prepared by: Tim Berry  
Locality Liaison  
Virginia Department of Conservation and Recreation  
Division of Natural Heritage  
Natural Heritage Technical Report 96-15  
May 15, 1996



## **Table of Contents**

Introduction .....	1
Description of Work and Deliverables .....	2
Project Assessment .....	5
Status of Locality Acceptance .....	5
Analysis of Project Review Volume .....	5
Challenges .....	6
Conclusions and Opportunities .....	7

## **Appendices**

Appendix 1: Map Creation and Distribution Procedures	
Appendix 2: Instructions for Natural Heritage Resources Maps, One Minute Precision: Locality Level	
Appendix 3: Protected Species Legislation Information Sheet	
Appendix 4: List of Counties/Cities Contacted, Presented To	
Appendix 5: VDGIF Fish and Wildlife Information System, On-Line Service Fact Sheet	

## **List of Tables**

Table 1: CRMA and Statewide Requests: Locality vs. Total .....	6
Table 2: CRMA Requestors by Type .....	6

## Introduction

The Virginia Coastal Resource Management Area (CMRA) is home to an impressive array of plant and animal species and communities, but the pace of development throughout the region poses a substantial threat to this heritage of biodiversity. Local and regional governments in the CRMA have the means to shape and control development, but the decisions they make depend on the availability and quality of information they use.

The Virginia Department of Game and Inland Fisheries (VDGIF) and the Virginia Department of Conservation and Recreation (DCR) are responsible for protecting and managing numerous natural resources in the Commonwealth. In support of these responsibilities, both agencies have developed comprehensive and reliable interrelated statewide information systems containing thousands of records about flora, fauna, and natural communities. Many of these records have been entered into computer databases, but are also supported by manual files and annotated topographic maps. These data have been compiled from a number of sources, including field collections, museum and herbarium records, and peer-reviewed scientific literature.

Both agencies apply these data to land use decision-making through the environmental review process. In 1993 DCR received 2595 requests for information pertaining to natural heritage resources. Over 50% of these requests were referring to projects or areas within the CMRA. Less than 1% of these CMRA projects or requests were submitted by localities.

Locality planning offices and regional Planning District Commissions (PDCs) provide information and guidance to elected officials, developers, and private landowners which shape the development of the locality, regardless of the type of zoning and planning regulations in place. This project focused on planning office staff, because of the key role they play in information distribution in the local development process. A liaison was created between DCR and local and regional planners to facilitate inclusion of natural resource data in comprehensive planning, zoning, project sitings, open space planning, and other similar efforts. The necessary first step in the liaison is to make planning personnel aware of the available data and its potential usefulness, and to distribute this data in the most accessible format.

G70212. V8 1996

## Description of Work and Deliverables

**The Locality Liaison pursued several avenues of communication with local and regional planners, ranging from map distribution and phone conversations to specially prepared seminars.**

The Locality Liaison was in charge of distribution of general location maps of natural heritage resources. These maps indicate the general location of natural heritage resources within a locality or group of localities and the level of federal and state protection for each resource. This work included creating a filing system to organize mailings and to aid in response to requests for additional maps. Currently the Department of Conservation (DCR) maintains a supply of two of the most recent maps for each locality in the office and keeps the original maps at a copying center for quick reproduction if necessary. These maps were distributed to each county and city planning office within the CRMA (Coastal Resource Management Area), Planning District Commission (PDC) planners, Army Corps of Engineers (ACOE) offices with jurisdiction in the coastal zone, United States Fish and Wildlife Service (USFWS) field offices, the Chesapeake Bay Local Assistance Department (CBLAD), and the Department of Environmental Quality (DEQ). Please see the appendix for map creation and distribution procedures.

The general location maps were distributed with a letter introducing the Locality Liaison program, as well as a map instruction sheet, a list of county natural heritage resources, a fact sheet about DCR Internet services, and a fact sheet and order form for information services. The map instruction sheet was created to encourage planners to utilize the general location maps in land-use planning and decision making. Please see the appendix for a copy of these instructions. A fact sheet describing agencies, including the Virginia Department of Game and Inland Fisheries (VDGIF), with regulatory responsibilities for listed species and other natural heritage resources was also distributed. A copy of this is also included in the appendix.

Following the August/September 1995 distribution of maps, the Locality Liaison began a follow up program to make regional and local planners aware of and facilitate use of natural resource data as well as to ensure proper delivery of the maps and other resources. The Locality Liaison attempted to call planners in every coastal zone locality and PDC office to introduce the locality liaison program. We viewed these phone conversations as an opportunity to answer questions pertaining to the available resource data and to get valuable feedback about the usefulness of the distributed maps. Notes from these phone conversations were taken and organized into a feedback file to inform later map creation and distribution procedures. These conversations often provided opportunities to describe the mandates and responsibilities of the different federal and state natural resource agencies, answer questions concerning particular species found in the counties, and refer planners to regulatory authorities. A listing of county/cities contacted is included in the appendix.

Because planning personnel can be very busy and difficult to reach, the Locality Liaison introduced the liaison program to local planners at the regional PDC meetings. The natural heritage resource maps and other data sources were explained and made available at these meetings. The PDC meetings also allowed the localities to express their needs for natural resource data and identify the sources and types of data currently being used. This avenue of communication was particularly effective and was encouraged by support from CBLAD personnel who possess a great deal of experience communicating with local planners. Several locality requests for information immediately followed these large group meetings. A list of groups to whom presentations were made is attached.

An additional resource to be distributed to local and regional planners is the Natural Area Source Book: A guide for land managers, scientists, educators and conservation planners within the Virginia Coastal Resources Management Area, produced by DCR. This comprehensive guide to natural resources in the coastal zone provides background information on the coastal zone, outlines sources of information, and describes the various agencies of importance in the coastal zone. It also describes resource management planning for natural areas supporting rare flora, fauna, and exemplary natural communities. This Source Book has already been distributed to many localities; all remaining CRMA counties, cities, and PDCs will receive a copy when the next set of county maps are distributed. Periodic updates to the Source Book will also be distributed.

**The Locality Liaison coordinated with other natural resource agencies to distribute more comprehensive information and to identify existing contacts with local and regional planners.**

The Locality Liaison had multiple meetings with staff from the Chesapeake Bay Local Assistance Department and with staff from the Army Corps of Engineers, specifically concerning the Locality Liaison program and to communicate about the distribution of natural resource data to local and regional planners. CBLAD staff suggested planning our seminars in conjunction with their scheduled presentations at PDC meetings regarding the Chesapeake Bay Program and comprehensive planning issues. Army Corps of Engineers staff are particularly interested in distribution of natural heritage resource information to the permitted public through local planning offices. They desire to make natural resource information available during the earliest planning stages of development and construction so that the need for regulatory action can be reduced. By making natural heritage information more accessible through planning departments, the Army Corps of Engineers hopes to achieve higher levels of coordination and cooperation before the actual permitting process.

In addition, the Locality Liaison participated in the Virginia Environmental Management Coordination Committee. This committee is attempting to foster inter-agency communication and exchange of useful information as well as streamline permitting and review processes. These meetings offered an opportunity to introduce the Locality Liaison program and provide updates to staff from the ACOE, CBLAD, Virginia Department of Game and Inland Fisheries (VDGIF), the

United States Fish and Wildlife Service (USFWS), the Virginia Marine Resources Commission (VMRC), the Virginia Institute of Marine Science (VIMS), the Department of Environmental Quality, the Environmental Protection Agency (EPA), the Natural Resource Conservation Service (NRCS), etc.

Attempts were made to coordinate with the Virginia Department of Game and Inland Fisheries (VDGIF). A description of VDGIF's role in protected species regulation was included in the initial fact sheet distributed with the County Natural Heritage Resource Maps. During communication with CRMA localities, the Locality Liaison stressed the importance of the role of VDGIF in listed animal species regulation and general wildlife issues, and referrals were made to VDGIF in all Project Reviews in which listed animal species were identified. The Locality Liaison also distributed fact sheets describing VDGIF's Fish and Wildlife Information System on-line service (see Appendix). Appropriate reference to VDGIF's resource maps, produced and distributed by VDGIF as a separate component of this grant, will be provided in all future locality contacts.

**The Locality Liaison worked with environmental review staff to ensure prompt, effective response to locality requests for assistance in the coastal zone.**

The Locality Liaison worked with the Natural Heritage Project Review Coordinator to respond to information and project review requests concerning the coastal zone. After thorough training in environmental review procedures, the Locality Liaison coordinated the majority of coastal zone projects. This involved reviewing natural resource databases, coordinating with staff botanists, ecologists, and zoologists, and drafting written responses.

DCR possesses hard copy maps of the locations of documented occurrences of natural heritage resources, a computer database repository of all species location and status information (the Biological Conservation Database), and a GIS system utilizing an ArcView software application developed specifically for project review.

Environmental review for proposed projects requires consultation with biologists knowledgeable about species found in the area. DCR-Division of Natural Heritage zoologists, botanists, and ecologists provided valuable expertise and information regarding proposed projects and other requests for information. Some CRMA projects required consultation with other agencies not previously mentioned, such as the United States Geological Survey.

The written responses indicate the occurrence or possible presence of listed species or other natural heritage resources that may be impacted by proposed projects or may be located within a study area. They also include habitat and threat information for species and communities mentioned. Responses to projects that may impact listed species always include a referral to the appropriate regulatory agency or agencies and a copy of the DCR response is sent to the agency. The Locality Liaison also reviewed several parcels proposed for rezoning submitted from local planners. In addition, the Locality Liaison and other DCR staff reviewed several rare species reports submitted to the Prince William County Planning Department by consultants.

## **Project Assessment**

### **Status of locality acceptance**

Local planners in the coastal zone of Virginia are eager to receive information pertaining to the natural heritage resources found in their county. Almost all counties were pleased to obtain the county block maps. Some counties are using this information to screen large scale zoning changes or developments (examples include Prince William and Gloucester counties). By far, the most frequent use of natural resources information was in comprehensive planning and in creating specific planning documents. For example, Henrico county included a modified version of the county block map in its comprehensive planning document, while Chesterfield county incorporated the information we provided into a riverfront planning project. Many county planners expressed interest in making the maps available to the public, with the goal of avoiding conflicts between project proposals and protected species regulations, particularly before much capital is expended by the landowner or developer.

The Locality Liaison and Steve Carter Lovejoy, Natural Heritage Information manager, provided a seminar to the Prince William County Planning Department. This was the most successful contact of the project, to this date. Not only was a great deal of information shared, particularly in round table discussion after the seminar, but this meeting led to a shift in approach to liaison activities. Group meetings of planners became the focus of reaching county planners. DCR has followed this approach by meeting with the majority of coastal planning district commissions and is on the schedule for the remaining commissions. These large group meetings (both PDC and single planning department) provided an opportunity to explain the use of county block maps in an educational format. This resulted in increased contact with planners seeking information regarding specific species (such as in the Cities of Fairfax and Hampton) or specific project sites (such as in Prince William county).

### **Analysis of project review volume**

An initial concern in the development of this project was the extremely low number of information requests and projects submitted for review from localities. As a result of this program, the number of formal requests submitted by localities has more than doubled from Calendar Year 1994 to Calendar Year 1995 (see Table 1). The percentage of CMRA requests to come from local and regional governments increased from 0.69% in Calendar Year 1994 to 2.02% in Calendar Year 1995. The number of CMRA locality requests is still low compared to the overall volume of requests handled by Natural Heritage Project Review (see Table 2), but two issues mitigate this.

One is that informal direct contact by phone or in person provided many answers for local planners. As local planners develop greater knowledge of and more direct access to information about the natural resources and related concerns in their localities, the number of information request may decrease.

The second mitigating factor is that the General Location County Maps are intended as a screening tool, to alert planners, landowners, and developers to the possibility of impacts and the need to get more information. They also serve notice that in broad areas of the city/county, in the absence of other information, planners, landowners, and developers do not need to pursue further information regarding natural heritage resources. When a screening tool like these county maps is successful, the number of formal request for information or project review may actually decrease, and the percentage of requests that require a substantive response should increase. This has been our experience with a related project, the provision of data to the ACOE for screening applications for wetland permits.

**Table 1: CRMA and Statewide Requests: Locality vs. Total**

Time Period	Calendar Year 1994	Calendar Year 1995	Fiscal Year 1994	Fiscal Year 1995
<b>CRMA Locality Requests</b>	9	23	12	20
<b>CRMA Total Requests</b>	1295	1140	1325	1328
<b>State Total Requests</b>	2687	2585	2609	2757

**Table 2: CRMA Requestors by Type**

Request Type	Locality	ACOE	NRCS	Other Fed.	Private	DCR PRR	VDOT	VMRC	Other State
<b>Calendar Year 1994</b>	9	517	8	7	191	495	35	23	8
<b>Calendar Year 1995</b>	23	437	9	15	165	382	79	14	16

**Challenges**

This project has revealed several challenges to the distribution and use of natural heritage information at the local government level.

--the busy schedules and deadlines faced by many planners make it difficult to obtain quality phone conversations or schedule meetings to assess needs for natural heritage resources information.



--the large size of some county planning departments makes it difficult to determine who needs the data we can provide and to ensure that the personnel with the need are aware of and have access to the natural resource information. Specialists working on comprehensive plans, GIS systems, or environmental planning for a single county may all benefit from natural heritage resource information. It is often difficult to determine the information needs of the varied personnel from a phone call to the planning department.

--requests for natural heritage information tend to taper off following initial contact by the Locality Liaison. This may be a result of time demands placed on most planners and reflect the number and complexity of issues planning departments manage. Thus, effective contact with planning departments needs to be ongoing and proactive. The high turnover rate in locality planning staff reinforces this need.

--locality staff often have interest and information needs for specific local projects of opportunity or concern such as natural area restoration or acquisition. Although the project review process accesses the expertise of the DCR-Division of Natural Heritage staff, the locality liaison is limited in his ability to provide a greater level of support, when additional natural heritage resource surveys or on-site inspection/investigation are needed.

These challenges have allowed for analysis and refinement of the Locality Liaison activities. This critical thinking has given rise to new ideas for further and more effective natural resource information dissemination. Some of these are described in the next section.

### **Conclusions and Opportunities**

--In many large or fast-growing counties, planning department personnel are busy and under time pressures such as the CBLAD requirement for updating comprehensive plans. In these situations, phone and letter contact is difficult to maintain and may result in natural resource information being lost or misplaced. In these cases an environmental education approach is much more effective than the "sales" paradigm in conveying information about natural resources to entire planning departments. The educational approach allows for a free exchange of ideas, with both parties anticipating gaining knowledge, while the selling approach requires our agency to convince the planners of their need for natural resources information during a busy office day.

--Planning departments in some counties are large, complex, and perform many tasks. It is important however to reach the entire department because:

- it is often difficult to determine exactly who works with natural resource related issues
- there may be GIS specialists, environmental planners, comprehensive planners, etc. who will benefit from current and thorough natural resources information
- it is important for the managers to understand the benefits of natural resource information and information tools as they manage the employees and deal with large issues at the county scale

--Planning department personnel, in general, seem more open to examine new sources of information, or new means of distributing information to the public, at conventions, symposiums, or seminars. This may reflect an openness to new ideas created by being in a new or different environment away from the office. These situations also provide opportunities to distribute information to large groups of people at once.

--The success of this project suggests that avenues should be explored to establish and maintain an ongoing, active, and permanent liaison between the Division of Natural Heritage and locality planners. Furthermore, opportunities exist for greater, more specific involvement in locality projects that result in the protection or restoration of natural areas. We intend to pursue these opportunities in the next phase of this project.

## **Appendices**

- Map creation and distribution procedures**
- Map instruction sheet**
- Protected species legislation information sheet**
- List of counties/cities contacted, presented to**
- VDGIF Fish and Wildlife Information System  
On-Line Service Fact Sheet**

## **Map Creation & Distribution Procedures**

### **I. Map Creation**

1. BCD database is checked for quality control.
  - A. All records are selected that are seconds records or minutes records more recent than 1960. This excludes unmappable records, general records, and minutes records previous to 1960.
  - B. The location and extent of these natural heritage resources are checked for accuracy.
2. For each defined map, all selected records are exported to DOS in ASCII file format.
3. Selected records are reported into a specific format. (List of resources printed for each map)
4. ASCII files uploaded to Prime system.
5. Files undergo a series of formatting programs with final result being conversion into ARC/INFO coverages.
6. ARC/INFO coverages checked for correct location of resources.
7. ARC/INFO coverages converted into plot files. During this process data layers of transportation, hydrology, U.S.G.S. quadrangle borders and jurisdictional boundaries are added.
8. Plot files are run and maps are plotted

### **II. Map Distribution**

1. Distribution letter created describing information tools provided.
2. Mailing list of localities in the coastal zone is updated through phone calls to confirm names of planners and addresses.
3. Mailing Packet created including maps, map information sheets, and other useful brochures and data.
4. Information Packets quality checked for completeness.
5. Distribution checklist is used to ensure all packets mailed out.
6. Phone calls made to planning departments to ensure receipt of materials and to answer questions.

## **Instructions for Natural Heritage Resources Maps One Minute Precision: Locality Level**

Attached you will find a locality map and a list of natural heritage resources that have been documented to occur within this locality. **Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, rare or state significant natural communities or geologic sites, and similar features of scientific interest.** The Department of Conservation and Recreation's Division of Natural Heritage (DCR) is responsible for the identification, monitoring, and protection of Virginia's natural heritage resources.

DCR maintains a data system (BCD) that is the most comprehensive and up-to-date repository of natural heritage resource information available. Information available from DCR on potential impacts to natural heritage resources is crucial to a comprehensive environmental assessment of proposed developments or activities.

The attached map depicts the general locations of natural heritage resources within a county as **one minute location blocks**. In order to protect sensitive natural heritage resources, precise locations are not released. Instead, we report the latitude and longitude of the center points of geographic areas one minute by one minute in size (roughly equivalent to one square mile). Each one minute location block contains the location of one or more natural heritage resources and is color coded to indicate the highest legal protection status for natural heritage resources within the block. One minute location blocks should serve as caution flags to identify potentially sensitive areas during planning efforts. Center points should not be interpreted as precise natural heritage resource locations, nor should blocks be considered buffer zones for natural heritage resources contained within them.

**These maps are for your use only. Please do not copy or distribute them. If you need additional copies, please contact DCR. Because of the dynamic nature of data concerning natural heritage resources, we ask that you discard earlier versions of the maps when receiving the latest versions.**

Using natural heritage maps, localities may screen projects submitted for local permits and approvals. This information will allow local representatives, land owners, and citizens to make informed decisions concerning projects that may impact valuable natural resources. DCR is willing to review and comment on projects that fall within the one minute blocks and may affect natural heritage resources. This early project screening may avoid unexpected, costly delays during the approval and permitting process.

DCR can provide the one minute block locations of natural heritage resources along with associated data fields in **digital format** for those with GIS capabilities. A data license agreement must be completed prior to receiving the data.

**Most natural areas in Virginia have not been thoroughly surveyed, and new occurrences of plant and animal species continue to be discovered. Heritage reports summarize the existing information known to DCR at the time of the report and any information provided cannot be considered a definitive statement on the presence, absence or condition of biological elements on a particular site.**

For further information contact:

Steve Carter-Lovejoy  
Information Manager  
Department of Conservation and Recreation  
Division of Natural Heritage  
(804) - 786 - 8377

Tim Berry  
Locality Liaison  
Department of Conservation and Recreation  
Division of Natural Heritage  
(804) - 692 - 0984

## Protected Species Legislation

### **All federally listed species - U.S. Fish and Wildlife Service**

Federally listed species are protected by the Endangered Species Act of 1973, as amended. The U.S. Department of the Interior's Fish and Wildlife Service administers the Act, listing and protecting federally endangered and threatened species. As of April 1995 14 plant species and 57 animal species occurring in Virginia are federally listed as endangered or threatened; one animal species is formally proposed for listing. 50 plant species and 69 animal species are candidates for listing.

### **State listed plant and insect species - Virginia Department of Agriculture and Consumer Services**

The Office of Plant Protection within the Virginia Department of Agriculture and Consumer Services (VDACS) has regulatory responsibility for listing and protecting Virginia's endangered and threatened plants and insects, under the Virginia Endangered Plant and Insect Act (Section 3.1 -1020 through 1030, Code of Virginia). The Act provides for the official listing and recovery of endangered and threatened plant and insect species in Virginia and establishes a permit system for collection of listed species.

### **State listed non-insect animal species - Virginia Department of Game and Inland Fisheries**

The Virginia Department of Game and Inland Fisheries (VDGIF) has the regulatory responsibility for the listing and protection of Virginia's endangered and threatened animals (excluding the Class Insecta) under the Virginia Endangered Species Act (Section 29.1-564 through 570, Code of Virginia). All animals protected by the federal Endangered Species Act are included in this list.

### **Natural Heritage Resources - Department of Conservation and Recreation, Division of Natural Heritage**

The Virginia Department of Conservation and Recreation works cooperatively with the Virginia Department of Agriculture and Consumer Services, the Virginia Department of Game and Inland Fisheries, and the U. S. Fish and Wildlife Service to ensure the continued survival of Virginia's diverse flora, fauna, natural communities and other elements of natural diversity. DCR-DNH is a non-regulatory agency and serves as a key source of information to each of the regulatory agencies.

DCR-DNH also works closely with other state and federal agencies, local governments, conservation organizations, and other organizations and individuals to seek adequate protection of Virginia's natural heritage.

**List of Counties/Cities Contacted/Presented To**

Accomack County  
Caroline County  
Charles City County  
Chesterfield County  
City of Chesapeake  
City of Fairfax  
City of Falls Church  
City of Fredericksburg  
City of Hampton  
City of Hopewell  
City of Manassas  
City of Manassas Park  
City of Newport News  
City of Norfolk  
City of Petersburg  
City of Virginia Beach  
City of Williamsburg  
Essex County  
Fairfax County  
Gloucester County  
Hanover County  
Henrico County  
James City County  
King William County  
King & Queen County  
Lancaster County  
Mathews County  
Middlesex County  
Northumberland County  
Prince George County  
Prince William County  
Richmond County  
Spotsylvania County  
Surry County  
Westmoreland County

# Virginia Department of Game and Inland Fisheries

## Fish and Wildlife Information System: On-Line Service

---

In 1994, the Virginia Department of Game and Inland Fisheries (VDGIF) implemented microcomputer-based modem access to the agency's numerous biological information systems. This on-line service includes many query and report features which facilitate data retrieval and summary within and across independent databases. This centralized approach offers VDGIF an opportunity to make information related to fish and wildlife resources and habitats available to users outside of the Department, while reducing concerns related to maintenance and update of multiple copies of individual applications. The system was developed using the Advanced Revelation (Revelation Technologies, Inc.) database management software and agency-written programs, as well as the LANtastic network software. The system currently has a number of features to enhance the user's experience, including:

- current and comprehensive information about all of Virginia's fish and wildlife resources, including trout streams, anadromous fish, colonial birds, waterfowl, and species listed as threatened, endangered, candidate, or of special concern. Data regarding listed plant species are also included through an arrangement with the Virginia Department of Agriculture and Consumer Services.
- comprehensive information about habitats and related features, including caves, impediments to fish passage, and springs;
- maps showing species distributions;
- maps showing project or query locations;
- menu-driven pathways allowing users to compile comprehensive records and display related data for a particular species, group of species, or geographic area (point, county, U.S.G.S. quadrangle, upstream/downstream, watershed, etc.);
- "e-mail" functions to allow users and the system administrator to exchange messages regarding systems, data, reports, or other features;
- individual user identification and user-created passwords;
- local printing capabilities to provide users with hardcopy results of their on-line session; and
- system documentation and on-line help.

New features, databases, and capabilities are constantly being developed to expand system utility to users. Individuals interested in obtaining access to the system, or in scheduling a system demonstration, should contact Rebecca K. Wajda, FWIS Coordinator, Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, Richmond, Virginia 23230, (804) 367-8351, (804) 367-2427 (fax).



### *Hardware/Software Requirements*

Users interested in obtaining access to the VDGIF FWIS On-Line Service should have the following hardware and software in place:

- IBM-compatible PC-286 or better (486 or Pentium preferable) (or Macintosh with appropriate interface software), EGA, VGA, or better color monitor;
- modem (minimum 2400 baud, 9600 or 14.4 baud highly desirable);
- Norton pcANYWHERE telecommunications software.

### *User Fee Schedule*

All user fees are assessed on a "per user-id" basis, not a "per user" basis. These fees cover the basic costs incurred by VDGIF in supporting this service and the associated user community.

- **Initial Setup Fee** **\$300/user-id**

This one-time fee covers the cost of the user manual, one day of on-site training, and system administration to establish the new user-id.

- **Annual Subscription Fee** **\$350/user-id/year**

This annual fee is directed towards the maintenance of modem lines, user support/help desk, new/revised documentation, and other administrative costs associated with carrying a user on the system. The fee allows for unlimited number of hours of access by any valid user-id.



NOAA COASTAL SERVICES CTR LIBRARY



3 6668 1411980 2