

**JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION
OF THE VIRGINIA GENERAL ASSEMBLY**

**Feasibility of
Consolidating
Virginia's Wildlife
Resource Functions**

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Preface

The 1995 General Assembly directed the Joint Legislative Audit and Review Commission (JLARC) to review the feasibility of consolidating the Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resources Commission (VMRC). The 1996 General Assembly expanded this mandate by directing JLARC to examine the existing division of responsibilities among all the natural resources agencies and to consider various alternatives for changing the division of responsibilities.

This report focuses on agencies with wildlife management responsibilities, including DGIF, VMRC, the Department of Conservation and Recreation (DCR), and the Virginia Department of Agriculture and Consumer Services (VDACS). A subsequent report, to be completed in 1997, will focus on the responsibilities of the other natural resources agencies.

Three State agencies — DGIF, DCR, and VDACS — share responsibility for managing Virginia's terrestrial wildlife. This review found that terrestrial wildlife management is inappropriately fragmented and should be consolidated into DGIF. However, the name, priorities, and funding of DGIF need to be changed to reflect a commitment to the management of all wildlife, instead of the current focus on game wildlife.

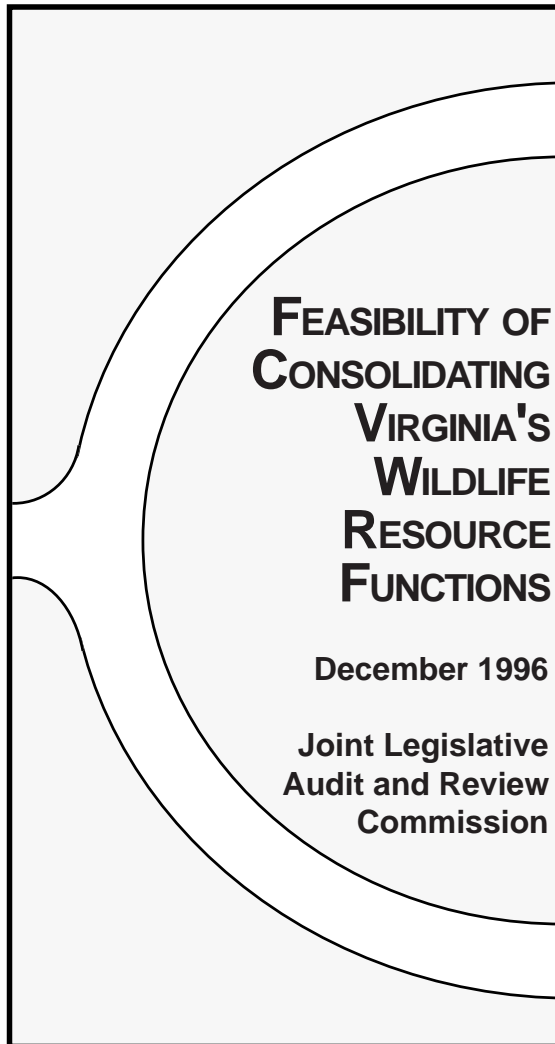
The study further found that while there are some important areas of difference between DGIF and VMRC, there are also some significant areas of overlap and related activities. A number of problems due to these responsibilities have been identified. In addition, various trends suggest that these areas of overlap will increase over time. Therefore, a consolidation of DGIF and VMRC appears feasible and should be considered. However, there are also potential concerns with consolidation that need to be taken into account. If policy-makers are interested in pursuing a consolidation, a detailed implementation plan will be needed that considers agency management concerns about a consolidation as well as the potential benefits of consolidation and the long-term trends of the agencies.

On behalf of JLARC staff, I would like to express our appreciation for the cooperation and assistance provided by the Department of Game and Inland Fisheries, Virginia Marine Resources Commission, Department of Conservation and Recreation, and Department of Agriculture and Consumer Services in the preparation of this report.

Philip A. Leone
Director

December 12, 1996

JLARC Report Summary



The 1995 General Assembly Session directed JLARC to review the feasibility of consolidating the Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resources Commission (VMRC). The 1996 General Assembly Session expanded this mandate by directing JLARC to review the existing division of responsibilities and authorities among all the natural resources agencies, and to consider various alternatives for changing the division of responsibilities.

This report focuses on agencies with wildlife management responsibilities, including DGIF, VMRC, the Department of Conservation and Recreation (DCR), and the Virginia Department of Agriculture and Consumer Services (VDACS). Wildlife as used in this report includes all species of non-cultivated plants and non-domesticated animals, including terrestrial and aquatic species. A subsequent report, to be completed in 1997, will focus on the responsibilities of natural resources agencies other than wildlife management.

DGIF is responsible for managing and enforcing laws and regulations on hunting, inland fishing, threatened and endangered animal species, other nongame animal species, and boating. VMRC is responsible for managing and enforcing laws and regulations pertaining to saltwater commercial and recreational fishing. DCR, through its Natural Heritage Division, is responsible for preserving the natural diversity of biological resources in the Commonwealth, including rare, threatened, and endangered plant, insect, and animal species. VDACS, through its endangered plant and insect program, is responsible for regulating threatened and endangered plants and insects.

Major conclusions of this report are:

- Terrestrial wildlife management functions should be consolidated within DGIF.
- While there are some important areas of difference, there are also some significant areas of overlap in the fisheries, habitat, and law enforcement responsibilities of DGIF and VMRC. Further, long-term trends suggest that VMRC is increasingly

engaged in work similar to that traditionally associated with DGIF, while DGIF's vision for the future includes taking a comprehensive approach to wildlife issues.

- A consolidation of DGIF and VMRC thus appears feasible and should be considered. However, there are potential concerns with consolidation that will need to be taken into account. If policy-makers are interested in pursuing a consolidation, an implementation plan will be needed that considers agency management concerns about a consolidation as well as potential consolidation benefits and the long-term trends of the agencies.

Terrestrial Wildlife Management Functions Should Be Consolidated Within DGIF

DGIF, DCR, and VDACS share responsibility for managing Virginia's terrestrial wildlife. Despite their similarities, DGIF and DCR Natural Heritage staff do not adequately cooperate. Consequently, their research is not coordinated and they maintain duplicative data on many wildlife species. In fact, the agencies maintain similar information on 521 of the same species on their databases. In addition, the VDACS endangered plant and insect program does not have adequate staff support, and relies on Natural Heritage staff for most of its research, and on DGIF for enforcement.

Consolidating these functions into a single agency would result in a number of advantages. These include: better services for the public, more accurate and complete wildlife information, improved species recovery efforts, and more efficient wildlife research.

Since DGIF has statutory responsibility for all wildlife, including threatened and endangered animal species, and it has a state-

wide network of biologists and law enforcement officers that are involved in these activities, these programs should be consolidated within DGIF. However, the name, priorities, and funding of DGIF need to be changed to reflect a commitment to the management of all wildlife, instead of just game wildlife. As part of this, DGIF should create a separate division which would include the Natural Heritage and VDACS staff, and DGIF should receive the positions and current level of funding of these programs.

There Is Significant Overlap of the Fisheries, Habitat, and Law Enforcement Responsibilities of DGIF and VMRC

This review has found that the responsibilities and tasks of DGIF and VMRC with regard to law enforcement, fisheries management, and habitat management are highly related. For example, each agency has responsibility for specific items that cross into each other's geographic jurisdiction. DGIF has responsibility for boat registration and boat ramp maintenance throughout Virginia, including the Tidewater area, and for permitting marine events such as regattas. VMRC has responsibility for permitting projects encroaching submerged bottomlands throughout Virginia.

In some areas, such as responsibility for American shad, the agencies have worked out an effective cooperative agreement. However, in areas such as aquaculture permitting, certain fisheries regulations, hunting and fishing enforcement, boating enforcement, and submerged bottomland enforcement, there are examples of duplication, gaps in services, and/or missed opportunities for improved service delivery.

Trends suggest that this overlap will continue to expand. Over the past several years, the number of hunters and commercial fishermen have declined. Similarly, VMRC shellfish enforcement activities have

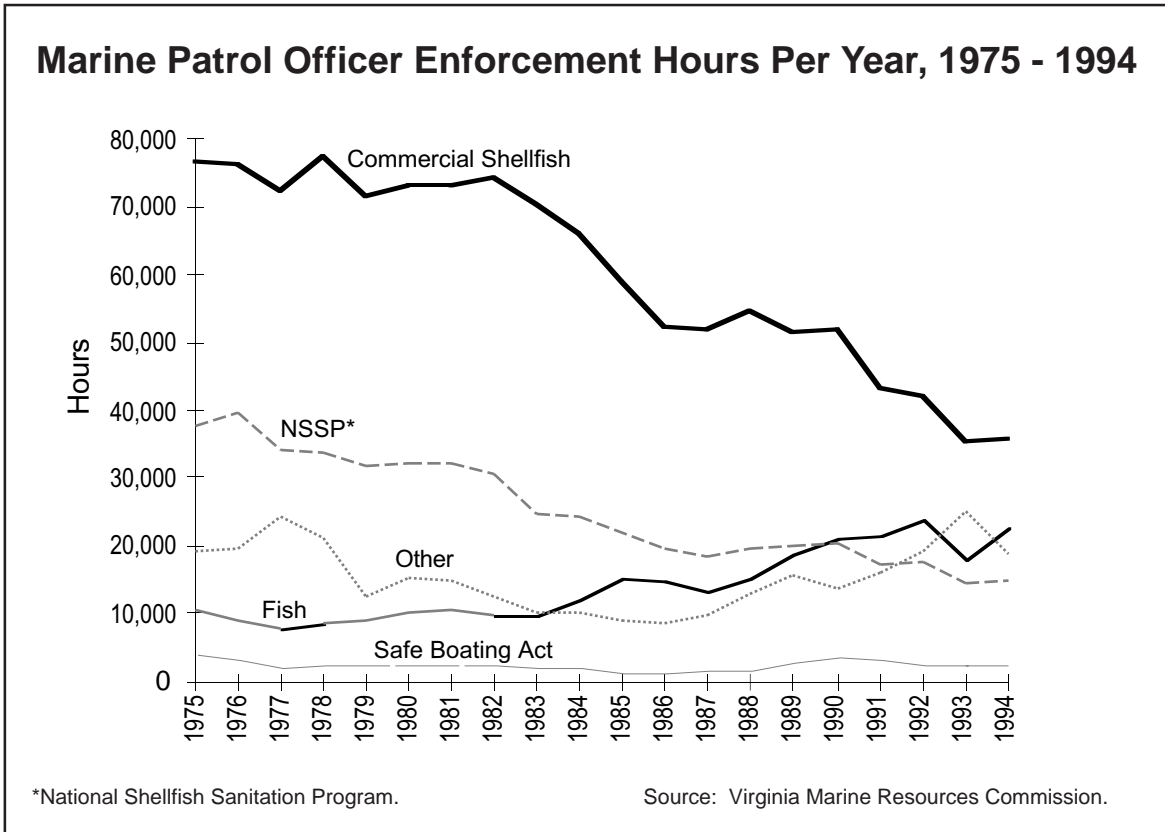
declined during the past 20 years (see figure below). The agencies' responsibilities for these constituents' services do not overlap — DGIF manages hunting and VMRC manages commercial fishing. On the other hand, the number of recreational fishing licenses has remained constant and the recreational boating population has increased. DGIF and VMRC personnel share many responsibilities in these areas. Therefore, if these trends continue, the percentage of time DGIF and VMRC staff spend on activities that overlap with each other will likely increase.

In addition, this review has found that the nature of much of the work conducted by DGIF and VMRC is similar. Even where the responsibilities of the agencies are clearly divided, such as hunting and commercial seafood enforcement, the type of work performed by the staff to manage and enforce the resource is similar.

Consolidation of DGIF and VMRC Should Be Considered

Given the amount of overlap between DGIF and VMRC, the problems resulting from this overlap, and the trends that suggest the amount of overlap will increase, it is clear that at a minimum, better coordination between the agencies is needed. However, better coordination may not be enough. This report has identified a number of services that would be better provided by a single agency, such as deployment of law enforcement officers and fisheries regulation development and permitting. Therefore, consolidation of these agencies needs to be considered.

Consolidating DGIF and VMRC Would Enable Law Enforcement Officers to Better Protect Virginia's Wildlife Resources and the Public. Consolidating VMRC and DGIF would improve protection of Virginia's wildlife resources and the public



by enabling better deployment of the officers, facilitating cross-training, and helping to address the marine patrol officers' resource problems. Based on a survey of DGIF and VMRC law enforcement officers, more officers who responded to the survey support a consolidation of the agencies if it is well implemented than oppose it.

Consolidating DGIF and VMRC Would Enable More Effective Aquatic Wildlife Management. A consolidated agency would enable VMRC and DGIF fisheries responsibilities to be carried out more effectively. For instance, a single agency would be responsible for all of fisheries management, and there would not be confusion over which agency is responsible for threatened and endangered marine organisms. In addition, only one agency would be responsible for aquaculture permitting, thereby reducing the number of State on-site inspections of aquaculture farms.

Consolidating DGIF and VMRC Would Improve Protection of Submerged Bottomlands. Consolidating VMRC and DGIF would enable the permitting and enforcement of submerged bottomland activities throughout the State to be handled by one agency. By having biologists and law enforcement officers throughout the State available to address submerged bottomland issues, Virginia's resources would be better protected.

Consolidating DGIF and VMRC Would Improve Boating Safety Enforcement and Enable More Equitable Use of Watercraft Sales Taxes. This review has identified a number of problems resulting from the overlap in boating responsibilities between DGIF and VMRC, including duplication of boating safety enforcement in the Tidewater area and inefficiencies in boating accident investigations. In addition, the Watercraft Sales and Use Tax could be distributed more equitably in the future by funding a portion of VMRC's boating activities from this tax. Consolidation of the

agencies would result in more efficient management of boating activities and eliminate duplicative boating safety inspections.

Consolidating DGIF and VMRC Would Enable Comprehensive Management of Virginia's Wildlife. Consolidating DGIF and VMRC, along with DCR's Natural Heritage Division and VDACS' endangered plant and insect program, would enable all of Virginia's wildlife to be managed by a single agency. This would conform Virginia's wildlife management with the current focus on managing wildlife from a holistic perspective. This type of management acknowledges that wildlife are related and interact with each other within an ecosystem. Fourteen of the other 18 coastal states have marine and inland wildlife management housed within a single agency.

Consolidation Is Feasible, But Concerns Need to Be Considered

The arguments for a consolidation need to be juxtaposed against the concerns raised by DGIF and VMRC management and staff in order to draw some final conclusions about the feasibility of consolidation (see exhibit on facing page). The more significant concerns include the fact that the agencies serve many different constituents, their constituents are generally satisfied with the services provided, and some of the agencies' primary responsibilities — hunting and commercial fishing — do not overlap. It appears that a number of these concerns could be addressed if the consolidation is accomplished in a manner that maintains or even enhances constituent services, does not diminish the attention given to game wildlife nor threaten the dedication of hunting fees to game purposes, and continues to devote attention to enhancing Virginia's marine resources.

If a consolidation is pursued, it needs to be carefully timed and planned. Policy-makers will need to decide when they think that the benefits of a consolidation clearly

Advantages and Concerns About Consolidating DGIF and VMRC

Advantages	Concerns
<ul style="list-style-type: none"> ■ Better deployment and coordination of law enforcement officers in the Tidewater area, and therefore enhanced public safety and improved protection of Virginia's natural resources ■ More coordinated aquatic resource management ■ Entities would only have to go to one agency for fisheries and law enforcement issues ■ Improved protection of submerged bottomlands west of Tidewater ■ Decreased duplication of services provided to the public with regard to aquaculture permitting ■ More equitable use of watercraft sales tax revenues by the agencies involved with boating safety ■ More comprehensive management of wildlife resources 	<ul style="list-style-type: none"> ■ The agencies have a number of different constituents ■ The agencies' constituents are generally satisfied with the current level of services provided ■ Some of the agencies' primary responsibilities are different -- one of DGIF's primary responsibilities is hunting, and one of VMRC's primary responsibilities is commercial fishing ■ The agencies have separate boards with different responsibilities and different representation ■ Morale and turf issues could result from a consolidation ■ Concerns that certain fees that are now dedicated continue to be used for those dedicated purposes

outweigh the risks or disruptions that might be entailed in this change. Further, it will be important to develop a good implementation plan addressing the details of how the consolidation will be implemented and how it will work. Therefore, at some point the General Assembly may wish to require the Secretary

of Natural Resources to develop a consolidation plan that addresses the issues raised in this report, and to submit an executive reorganization plan as indicated in Sections 2.1-8.1 through 2.1-8.8 of the *Code of Virginia*.

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I. Introduction

During the 1996 session, the General Assembly passed two measures which required JLARC to perform a broad review of Virginia's natural resource management functions. House Joint Resolution 173 (1996) directs JLARC to study the organization of the agencies and agency functions within the natural resources secretariat. HJR 173 calls for a review of the existing division of responsibilities and authority among the agencies, as well as consideration of various alternatives for changing the division of responsibilities. The other measure passed, Item 14 of the 1996 Appropriation Act, directs JLARC to examine the permit and other fee structures used by the natural resources agencies.

There are seven agencies within the natural resources secretariat. They are: Department of Game and Inland Fisheries (DGIF), Marine Resources Commission (VMRC), Department of Conservation and Recreation (DCR), Department of Historic Resources (DHR), Chesapeake Bay Local Assistance Department (CBLAD), Museum of Natural History (MNH), and Department of Environmental Quality (DEQ). In addition to the seven agencies, there are at least 16 boards within the secretariat.

An earlier measure passed by the General Assembly, Item 15E of the 1995 Appropriation Act, mandated a more focused study within the natural resources secretariat. Item 15E directs JLARC to review the mission, organizational structure, and operations of DGIF and VMRC. The review is to determine the feasibility of consolidating any of the services of the two agencies or related agencies and/or of consolidating both agencies into a new wildlife and fisheries agency.

This report examines the State's wildlife management functions. Generally, responsibilities for wildlife management were found to be dispersed across a number of State agencies. Four agencies have statutory authority for various aspects of wildlife management: DGIF, VMRC, DCR, and the Department of Agriculture and Consumer Services (VDACS).

WILDLIFE DEFINED

The term wildlife as used in this report includes all species of non-cultivated plants and non-domesticated animals, including terrestrial and aquatic species. This definition includes all wild animal species regardless of whether they are of interest to commercial industries or people who participate in wildlife-related recreation, or whether they simply exist as part of the ecosystem.

Historically, the profession of wildlife management has focused primarily on game species, particularly birds, mammals, and fish. As such, nongame species of animals and plants received less attention in the past. As one wildlife text explains:

Until the 1960s, wildlife management was primarily game management, the husbandry and regulation of populations of birds and mammals hunted for sport. Game management continues to be an important part of the profession of wildlife management, but the wildlife manager now must expect to deal with songbirds and turtles in addition to grouse and deer.

In recent years, increasing attention has been given to nongame species by State agencies, most notably in the area of threatened and endangered species.

IMPACT OF WILDLIFE RESOURCES ON VIRGINIA'S ECONOMY

Article XI of the *Constitution of Virginia* states:

To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.

This statement from the *Virginia Constitution* illustrates the importance of Virginia's natural resources for the general welfare of its citizens. By placing wildlife management within the Secretariat of Natural Resources, the Commonwealth has demonstrated its commitment to protecting its wildlife resources for the people's enjoyment. But Virginia's wildlife resources are not only important from a conservation and recreation standpoint, they also contribute to the Commonwealth's economy.

Wildlife-Related Recreational Activities

Virginia has an abundance of wildlife-related recreational activities which it can capitalize on for the enjoyment of its citizens and to the benefit of its economy. There are three major categories of people who participate in wildlife-related recreation: hunters, anglers, and wildlife watchers or non-consumptive users. The U.S. Fish and Wildlife Service (USFWS) conducts a survey every five years to identify the number of hunters, anglers, and non-consumptive users of wildlife and their direct expenditures related to recreational wildlife activities. Based on this survey in 1991 (the most recent year for which data are available), almost two million Virginians over the age of 15 participate in some form of wildlife-related recreation (Table 1). In addition, more than one-half million nonresident tourists visit Virginia each year to participate in wildlife-related recreation. These individuals contribute to Virginia's economy by purchasing

Table 1**Participants of Wildlife-Related Recreation, 1991**

Type of Recreation	Number of Virginia Residents	Number of Non-Residents
Hunting	353,000	49,000
Saltwater Fishing	251,000	89,000
Freshwater Fishing	642,000	137,000
Non-consumptive	668,000	414,000
TOTALS	1,914,000	689,000

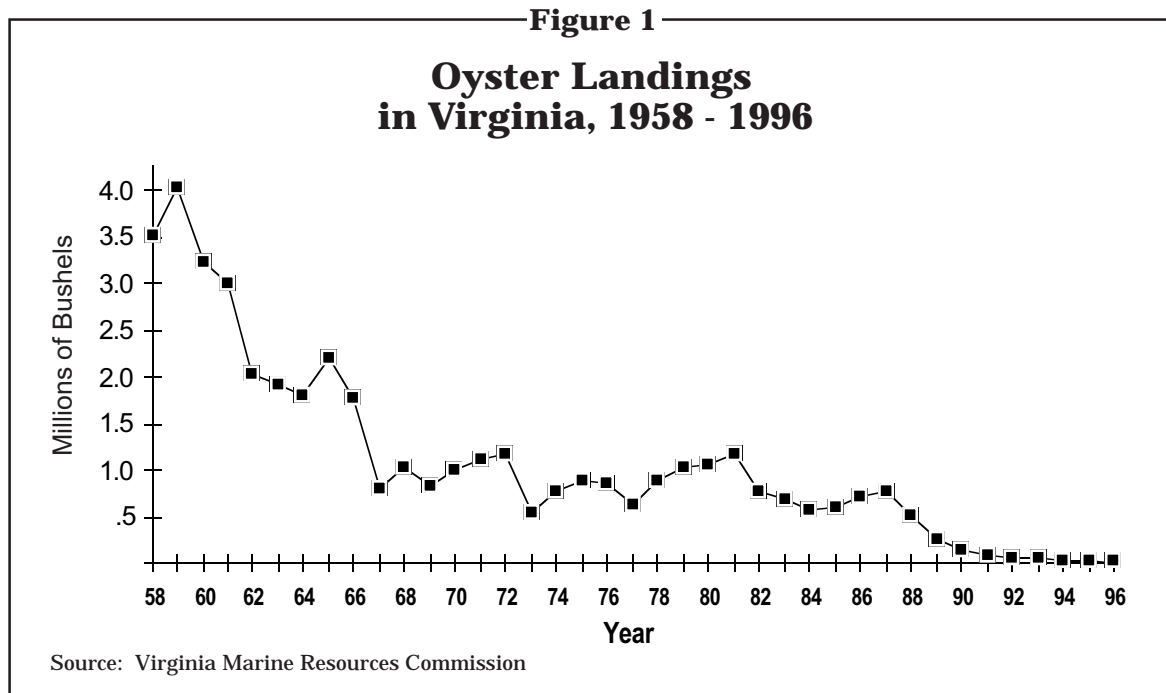
Source: Data from the U.S. Fish and Wildlife Service (USFWS). The USFWS conducts a survey of wildlife-associated recreation every five years, and 1991 is the most recent year for which data are available.

wildlife-related equipment and supplies. In 1991, expenditures for wildlife-related recreation exceeded \$430 million.

A recent study conducted by the Virginia Institute of Marine Science (VIMS) examined the economic impact of marine recreational fishing in Virginia. The report estimates that more than one-half million people participated in marine recreational angling in Virginia in 1994. These anglers incurred more than \$240 million in equipment, clothing, boats, and trip-related expenses. In addition to purchases which are directly related to their leisure pursuits, marine anglers also purchase goods and services in other industries, such as hotels and restaurants. These indirect purchases provide revenue and create jobs for other industries. In turn, those who earn their income from these indirect purchases spend their earnings in Virginia. The VIMS study estimates an additional \$216 million was spent in Virginia by marine recreational anglers and those from whom they purchased goods and services in 1994, and more than 8,700 jobs were created.

Commercial Fisheries

In contrast to the recreational fisheries industry, the commercial fisheries industry in Virginia is in a stagnant, or even declining, state. For example, in 1953, Virginia issued 3,203 licenses for hand tonging oysters. Today, there are less than 400 issued. The decline of the industry is also evidenced in the number of landings (shellfish and fish harvested). In FY 1959, there were more than four million bushels of oysters landed in Virginia. In FY 1996, the number of bushels of oysters landed had fallen to less than 17,000 (Figure 1). And, according to the number of VMRC commercial registration licenses sold, the number of commercial fishermen in Virginia declined 20 percent in the past two-year period for which data are available. In 1993, VMRC sold 3,837 commercial registration licenses. In 1995, the number of licenses sold fell to 3,066.



There is little evidence to suggest there will be improvement in future years. According to a recent VIMS study, the number of total landings in Virginia has been relatively constant since 1970. The VIMS study reported that there is little potential for growth in this industry since the Commonwealth is currently using its fisheries to their fullest potential. In 1994, employment statistics show that agriculture (which also includes those employed in forestry and fishing) comprised less than two percent of those employed in Virginia. Predictions are that by the year 2000, this sector will comprise less than .67 percent of those employed in the State. As the population of Virginia grows, its commercial fisheries industry will become a relatively smaller portion of the economy.

Despite these trends, Virginia's commercial fisheries are still a significant industry when compared to other coastal states. In 1995, Virginia ranked third in the nation for landings in pounds (777,602) and ninth for landings in dollars (\$113,659,000).

WILDLIFE FUNCTIONS OF STATE AGENCIES

There are four state agencies which have various levels of wildlife-related responsibilities — DGIF, VMRC, DCR and VDACS. JLARC's *Interim Report: Feasibility of Consolidating Virginia's Wildlife and Marine Resource Agencies* (House Document 17 from the 1996 General Assembly Session), provided in-depth background information on the roles and responsibilities of DGIF and VMRC, including the history of the agencies, previous studies on the possibility of consolidation, their missions, organizational structures, funding, and staffing resources. The interim report also included a review of

how other coastal states have organized their wildlife and fisheries activities. This chapter will briefly summarize the operations of DGIF and VMRC, as well as identify the wildlife functions in DCR and VDACS.

Department of Game and Inland Fisheries

The Virginia Department of Game and Inland Fisheries is responsible for the enforcement of all laws for the protection, propagation, and preservation of game birds, game animals, freshwater fish, and other wildlife including threatened and endangered animal species. Funding for these activities comes primarily from the sale of licenses and permits paid by hunters and anglers. The agency currently operates at a maximum employment level (MEL) of 410, with revenues exceeding \$31 million in the last fiscal year.

The activities, policies, and regulations of the department are directed by an eleven-member supervisory board. The Board of DGIF has developed three principles to guide the actions of its staff in the protection and propagation of the Commonwealth's wild animals, birds, and freshwater fish. These principles form the agency's mission statement and consist of the following:

- DGIF will manage Virginia's wildlife and inland fish, maintain optimum populations of all species, and serve the needs of the Commonwealth;
- DGIF will provide the opportunity for all to enjoy wildlife, inland fish, boating, and related outdoor recreation; and
- DGIF will promote safety for persons and property in connection with boating, hunting, and fishing.

DGIF is composed of seven divisions under the leadership of an executive director. Each of these divisions is either responsible for some facet of wildlife management or for the support of the agency's other divisions. Three of these divisions — Law Enforcement, Fisheries, and Wildlife — are referred to as the agency's "operational" divisions. Each of these three divisions is divided into five geographic regions covering northern, western, southern, central, and eastern Virginia (Figure 2).

The remaining four divisions are referred to as the agency's "support" divisions. These divisions include: Administrative Services; Boating and Facilities; Wildlife Information and Enhancement; and Public Relations, Marketing, and External Affairs. These four divisions provide services to both the agency's three operational divisions and the agency's constituents.

Law Enforcement Division. The Law Enforcement division is DGIF's largest division with 183 agency personnel, including 173 fully sworn game wardens. Although possessing full police powers, these officers' primary task is the enforcement of game, fish, and boating laws and regulations. Additional duties performed by the game

wardens include educating the public about agency laws and regulations, conducting maintenance checks on boat ramps, investigating the crop damage claims of landowners, and gathering statistical information on game and nongame animals. Game wardens are also responsible for the State's hunter safety program.

Fisheries Division. The Fisheries Division is charged with a wide range of responsibilities which include: managing inland fish, amphibian, reptile, and mollusk species; protecting species' habitats; proposing new regulations; conducting impact reviews of construction and land-use projects; and conducting research and restoration projects. The division is also involved with the fish passageways program — a cooperative venture between DGIF, VMRC and others — which provides structures to enable anadromous fish (fish that migrate up rivers from the sea to spawn in fresh water) to swim upstream around obstacles such as dams.

In addition, the Fisheries Division operates five cold water and four warm water fish hatcheries. These hatcheries raise many species of fish for use in stocking Virginia's waters in order to provide fishing opportunities to Virginia's freshwater anglers.

Wildlife Division. The Wildlife Division of DGIF is responsible for the propagation, management, and preservation of terrestrial wildlife and their habitat on more than 2.3 million acres of department-controlled land. The activities carried out by this division include: research on species' health, timber management, relocation of nuisance animals, clientele surveys, and the dissemination of information to other State agencies and private landowners. These activities also provide the research information from which the division develops its recommendations for hunting seasons. These recommendations become, with the Board's modification and approval, the regulations which govern hunters in Virginia.

Administrative Services Division. The Administrative Services Division of DGIF is responsible for nearly all of the organizational support provided to the operational divisions. That support includes: agency budgeting; procurement; purchasing; accounting; issuance of special permits; the purchase, sale, or trade of land; and the management information system.

Boating and Facilities Division. The Boating and Facilities Division carries out the boating-related responsibilities assigned to DGIF in the *Code of Virginia*, §29.1-700 through §29.1-750. The division separates its functions into three sections: boat titling and registration; boating and resource education; and boating access and facilities.

The *Code of Virginia* requires that every motorized boat in Virginia be registered with DGIF. In 1995, there were 224,795 boats registered in the State.

The boating and resource education section provides boating safety courses to boat owners and resource education classes to the general public. DGIF staff report that approximately 20,000 people each year receive instruction in boating safety from the division's 400 volunteer instructors. Division staff are also responsible for administering

a range of other public education activities such as youth fishing clinics and Project Wild, a program which trains teachers to teach students about wildlife.

The boating access and facilities section oversees capital outlay for the construction of boating access sites across the State and maintains DGIF facilities, ramps, and piers. DGIF currently maintains 226 boat landings.

Wildlife Information and Enhancement Division. The Wildlife Information and Enhancement Division is responsible for the following activities: the agency's nongame management program; environmental services; the agency's wildlife information system, permitting activities, and regulatory affairs.

Nongame management is administered by the division's five nongame coordinator positions, one of which is assigned to each DGIF region. The coordinators' task is to integrate nongame management into the game components of fish and wildlife management.

The environmental services section of this division is responsible for reviewing project and permit proposals submitted to DGIF by other State agencies. The proposals are evaluated based on the impact they may have on wildlife. If the project is deemed detrimental to wildlife, an alternative plan is suggested.

The Wildlife Information and Enhancement Division maintains the agency's Fish and Wildlife Information System (FWIS). The FWIS contains information on over 1,300 animal species found in Virginia, including threatened and endangered species. The information system includes information gathered from field surveys conducted by DGIF as well as other organizations. Although this information is maintained primarily for use by DGIF personnel, access is available to the public for a fee.

Another activity of this division is the permitting program. DGIF issues numerous permits which deal with all aspects of wildlife, including collecting and owning wild species. Finally, this division is also responsible for regulatory affairs for the agency, such as developing and tracking legislation.

Public Relations, Marketing, and External Affairs Division. The Public Relations, Marketing, and External Affairs Division of DGIF provides public outreach for the agency. The division employees produce numerous publications and newsletters used by the public and media, including *Virginia Wildlife* magazine.

Virginia Marine Resources Commission

The Virginia Marine Resources Commission, under various titles including the Oyster Navy, has been in continuous service to the Commonwealth of Virginia for over 100 years. Over that period the agency's mission has dramatically expanded from the advisory body originally envisioned. According to the agency's current mission statement, staff are the "stewards of Virginia's marine and aquatic resources for present and

future generations.”

More specifically, VMRC has statutory jurisdiction over Virginia’s territorial seas, tidal rivers and submerged bottomlands, marine fish, shellfish, and other organisms, coastal sand dunes and beaches, and commercial and recreational saltwater fishermen. As an organization, the commission has passed regulations governing these areas, and has created administrative and operational divisions to oversee the enforcement of those regulations. VMRC conducts its work with a MEL of 147 positions and a FY 1996 budget of \$11.5 million.

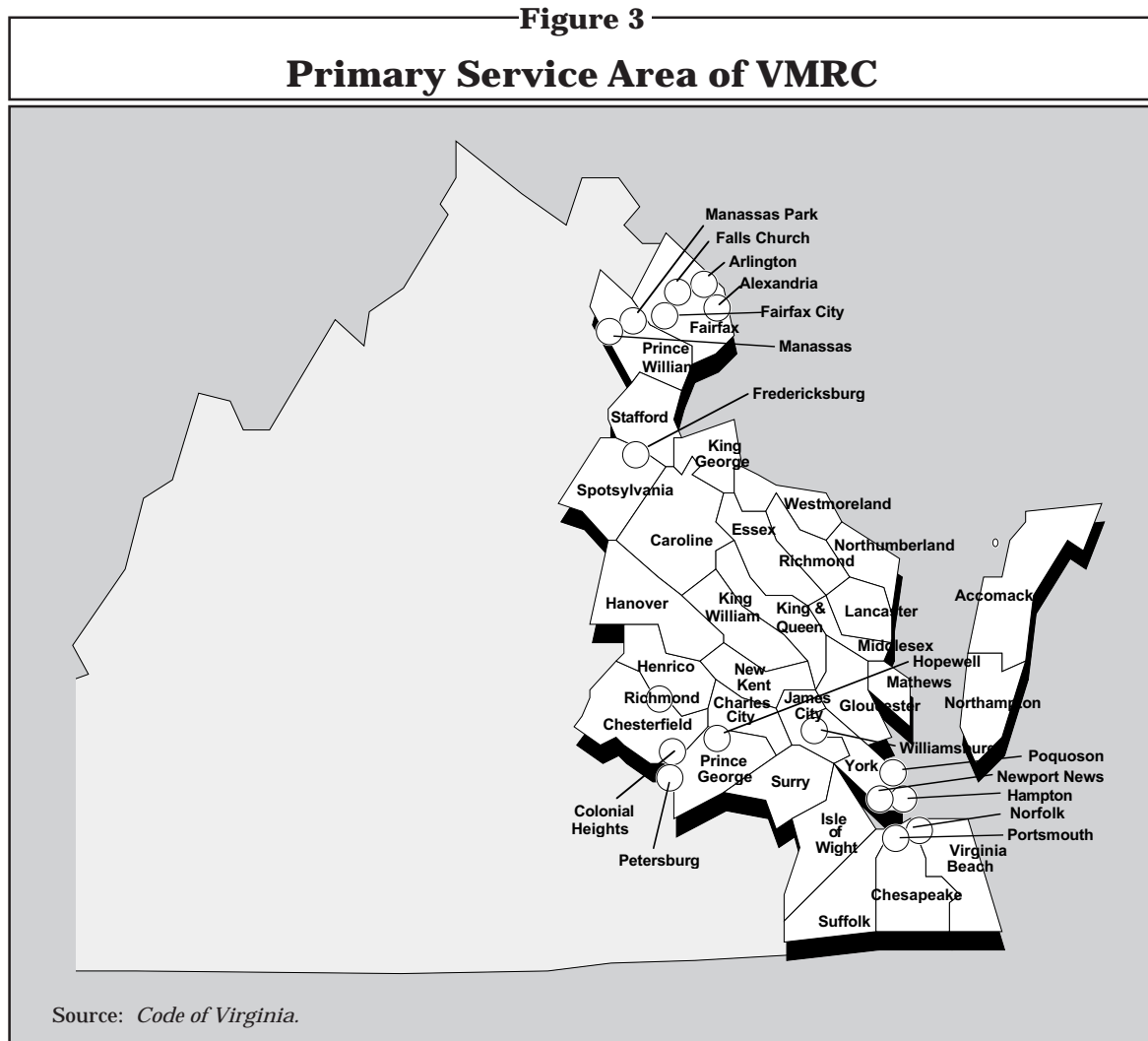
VMRC’s operations are carried out by six administrative divisions: Marine Law Enforcement, Fisheries Management, Habitat and Engineering, Oyster Replenishment, Management Information Systems, and Administration and Finance. While VMRC has responsibility for submerged bottomlands statewide, agency services are predominantly focused in the Tidewater area (Figure 3).

Marine Law Enforcement Division. The Marine Law Enforcement Division is the largest VMRC division, and enforces the State’s marine conservation, health, and boating laws throughout Tidewater Virginia. VMRC’s law enforcement officers, called marine patrol officers (MPOs), possess full law enforcement powers and perform a variety of tasks, including inspection of harvest methods and condemned seafood harvesting areas, patrol of the Chesapeake Bay and its tributaries up to the fall line, search and rescue operations, provision of assistance on the water, protection of State and private property on the water, and enforcement of the National Shellfish Sanitation Program.

Fisheries Management Division. The Fisheries Management Division of VMRC includes three sections: plans and statistics, the artificial reef program, and the Virginia Saltwater Fishing Tournament. The plans and statistics section is responsible for collecting landings data, developing fishery management plans, recommending fishery regulations, providing data to interstate coastal management commissions, auditing seafood dealer and watermen records, and conducting stock assessments. The artificial reef section is responsible for constructing and maintaining the State’s 12 artificial reefs, which provide a beneficial habitat for fish. The Saltwater Fishing Tournament section promotes fishing, in part by administering a fish citation program for recreational anglers, as well as through educational programs and other public relations work.

Oyster Management Division. The Oyster Management Division manages the 240,000 acres of public oyster grounds in Virginia. Due to a significant decrease over time in the number of oysters in Virginia, the division is primarily responsible for replenishing the public oyster grounds by planting harvested oyster shells and constructing oyster reefs.

Habitat and Engineering Division. The Habitat and Engineering Division of VMRC is responsible for ensuring that Virginia’s 1.5 million acres of submerged bottomlands and 5,000 miles of tidal shoreline are properly used. The *Code of Virginia*



vests the ownership of these resources in the Commonwealth to be used as a common resource by the public. This division is the permitting authority for public and private projects which would encroach into these areas.

The division also manages the leasing of private oyster planting grounds and houses the agency's survey teams which mark boundaries for private and public oyster grounds. Currently, the division has 7,000 leases issued for 101,000 acres of private oyster grounds.

Management Information Systems Division. The Management Information Systems Division of VMRC is responsible for the planning, procurement, and management of computer equipment and software.

Administration and Finance Division. The Administration and Finance Division is responsible for the agency's financial, personnel, legislative, and other business matters. The division's duties are divided among three sections: accounting and

licensing, human resources, and budgeting. The accounting and licensing section licenses and registers fishermen, fishing gear, and commercial and charter fishing boats. Human resources provides the agency's staff with personnel services, payroll benefits, and office services. The third section, budgeting, administers the agency's grants and contracts, conducts the budgeting process, and manages the agency's property.

DCR's Division of Natural Heritage

The Department of Conservation and Recreation's mission is to conserve Virginia's natural and recreational resources. The Department's organizational structure consists of six divisions (Administration, Natural Heritage, Dam Safety, Planning and Recreation Resources, Soil and Water Conservation, and State Parks.) There are also four policy and/or advisory boards (Board of Conservation and Recreation, Virginia Cave Board, Board on Conservation and Development of Public Beaches, and the Virginia Soil and Water Conservation Board.)

DCR's responsibilities for wildlife preservation are addressed through its Division of Natural Heritage which is dedicated to the identification, protection, and stewardship of Virginia's biodiversity. The program was established in 1986 as a joint venture between DCR and the Nature Conservancy, an international nonprofit organization. For the first two years, the Nature Conservancy administered the program.

In 1989, the General Assembly enacted the Virginia Natural Area Preserves Act. The *Code of Virginia*, §10.1-209 through §10.1-217, established the Natural Heritage Program as a public entity for the purpose of preserving the Commonwealth's natural heritage resources. The Natural Heritage Program is comprised of four sections: natural heritage inventory, information management, natural area protection, and natural area stewardship.

Natural Heritage Inventory Section. The natural heritage inventory section administers an inventory of the Commonwealth's natural heritage resources. Inventory staff conduct field studies to identify and locate rare, threatened, and endangered plants and animals, and exemplary communities across Virginia. In addition, inventories are conducted to assist private and public land managers with identification and management of these resources.

Information Management Section. The information management section manages all of the program's resource data. This section is also responsible for coordinating the division's project reviews of federal, State, and private construction and building projects to determine their impact on rare species. The division reviewed approximately 2,800 projects in FY 1995.

Natural Area Protection Section. The natural area protection section uses the information maintained in the program's database to identify specific natural areas where the program should concentrate conservation activities. The section also works to protect rare species by purchasing natural areas or providing landowners of natural

areas with technical assistance such as management plans.

Natural Area Stewardship Section. The natural area stewardship section is responsible for managing the habitat of rare species and communities on natural area preserves, other DCR-owned lands, and other public and privately owned lands. A natural area preserve is any area identified by the Natural Heritage Program as containing natural heritage resources which have scientific or educational value benefiting the citizens of the Commonwealth, and for which a right or interest has been transferred to the State in order to preserve the natural diversity of the Commonwealth's biological resources. DCR currently manages 16 natural area preserves throughout the Commonwealth. The Natural Area Preservation Fund, which consists of general fund appropriations, gifts, and bequests, is used to acquire natural area preserves.

Department of Agriculture and Consumer Affairs

The Endangered Plant and Insect Species Act, contained in the *Code of Virginia*, §3.1-1020 through §3.1-1030, was passed in 1979 and gives the Board of Agriculture and Consumer Services the authority to adopt regulations to conserve, protect, restore, and propagate threatened and endangered plant and insect species within Virginia. This authority includes the listing of species as endangered or threatened, regulating the taking and sale of these species, and passing any other regulations necessary to meet the goals of the Act. Species are listed as threatened or endangered upon the recommendation of the Director of DCR, or another reliable source, and the approval of the Board. The Act also gives VDACS the authority for investigating violations of these regulations and sets penalties.

The Endangered Plant and Insect Species Program is housed in the Office of Plant Protection of VDACS. It is currently staffed by one position, the Endangered Species Coordinator. Due to the limited size of the program, VDACS often works with other agencies to carry out its functions. VDACS is involved in cooperative ventures with the Natural Heritage Program, DGIF, and the U.S. Fish and Wildlife Service.

The Office of Plant Protection is required to provide input for environmental impact statements regarding a project's impact on threatened or endangered plant and insect species. In FY 1995, VDACS processed 1,443 information requests regarding the presence of listed species and coordinated 116 environmental impact statements.

Staffing and Funding of Virginia Wildlife Functions

The State spent almost \$45 million and had 576 staff positions authorized for wildlife-related functions in FY 1996 (Table 2). The staffing and funding levels of agencies with wildlife responsibilities are as diverse as are the division of responsibilities. DGIF has the largest staff with an authorized staffing level more than twice the authorized staffing levels of the other three agencies' wildlife functions combined. The wildlife agencies' revenues come from a variety of sources including general funds,

Table 2

Funding and Staffing of Wildlife Functions, FY 1996

Agency	Total Revenue	General Fund Revenue	Federal Revenue	Other Revenue	Expenditures	Authorized Staffing Level
DGIF	\$31,539,115	\$0	\$7,667,927	\$23,871,188	\$32,592,715 ^c	410
VMRC	11,557,992	7,326,903	1,709,340	2,521,749	10,333,763	147
DCR ^a	1,733,819	598,562	1,048,827	86,430	1,733,819	18
VDACS ^b	96,018	75,018	21,000	0	83,907	1
TOTALS	\$44,926,944	\$8,000,483	\$10,447,094	\$26,479,367	\$44,744,204	576

^a Funding information is for DCR's Division of Natural Heritage.

^b Funding information is for VDACS' Endangered Plant and Insect Program.

^c Expenditures exceeding revenues are paid from a DGIF reserve fund.

Sources: Data from 1996 Appropriation Act and respective agency documents.

federal grants, license fees, and bond issues.

Department of Game and Inland Fisheries. Since its inception, the Department of Game and Inland Fisheries has been funded by the fees charged Virginia's sportsmen. In fact, the act creating the department stated that no general funds could be used to pay staff salaries or support the agency's activities. Instead, all capital and operating costs incurred by the agency were to be paid from a special fund known as the Game Protection Fund, whose revenues would come from the sale of hunting, fishing, and trapping licenses.

In the years which have followed the agency's creation, the department's sources of revenue have not substantially changed. Most of DGIF's financial support still comes from the sale of licenses and permits. The department also receives a significant amount of federal funds to support its activities. DGIF does not typically request or receive general funds.

In FY 1996, DGIF received a total of \$31.5 million in revenues. The department receives three-quarters of its funding from the sale of licenses and permits, boat registration and titling fees, donations, and publication sales. The majority of the funds are from the sale of 56 different hunting and fishing licenses and permits.

The department receives federal funding from three primary agencies. First, the U.S. Fish and Wildlife Service provides funds for activities related to sport fish restoration, wildlife restoration, and endangered species. Second, the U.S. Department of Agriculture provides funding for work performed by DGIF on federal forests. Third, the U.S. Coast Guard provides boating safety financial assistance.

DGIF has a total authorized staffing level of 410 positions for FY 1996. The

three operational divisions contain the majority of DGIF staff. In particular, Law Enforcement constitutes the largest percentage of DGIF's workforce. The division's 173 game wardens and ten support staff represent 45 percent of the department's total personnel. The other two operational divisions — Fisheries and Wildlife — each have a staff allocation of 67, or 16 percent of staffing.

In contrast to the large percentage of department personnel assigned to the operational divisions, the four administrative support divisions constitute only a small portion of the agency's workforce. Of these support divisions, the Boating and Facilities Division is the largest with 33 employees, or eight percent of the total workforce. Second largest among the support divisions is Administrative Services (including central administration), which has a staffing level of 37 (nine percent). The agency's smallest divisions are Wildlife Information and Enhancement (four percent) and Public Relations, Marketing, and External Affairs (two percent). As of September 1, 1996, nine positions within DGIF were vacant.

Virginia Marine Resources Commission. For FY 1996, VMRC had a total budget of more than \$11.5 million and an authorized staffing level of 147 positions. VMRC receives three primary types of funding: general funds, federal funds, and revenue from licenses, permits, special taxes, and fines. VMRC depends heavily on general funds for its operation, which have been declining over time. In FY 1990, general funds accounted for 82 percent of VMRC's revenue. In FY 1996, this declined to 63 percent.

In contrast, an increasing portion of VMRC's revenue comes from licenses and permits. In particular, the saltwater recreational fishing license created in 1993 has been a major new source of funding for the agency. Unlike general funds, non-general funds, such as license revenues, may be expended only for a specific purpose. For example, the proceeds of the saltwater recreational fishing license may only be used by VMRC to improve or conserve finfish species taken by recreational anglers. A number of new finfish conservation projects have recently been started using those license revenues.

VMRC also imposes a number of other licenses, fees, and taxes. For example, there is a \$29 fee for each person taking or catching peeler crabs using a peeler pot. In all, the commission maintains 73 different categories of licenses, fees, and taxes. Most of these are directed at the Commonwealth's commercial fishermen.

In addition to licenses and general funds, approximately 15 percent of the commission's revenue was from federal agencies in FY 1996. VMRC currently maintains about 30 grants from various federal agencies. The two largest sources are the U.S. Fish and Wildlife Service for sport fish restoration, and the Department of Commerce for oyster reef construction.

VMRC currently has a MEL of 147. Law Enforcement is the largest of the divisions, with 74 positions. That number represents 50 percent of the agency's total workforce. The Fisheries Management Division is the second largest division, containing

26 positions, or 18 percent of total staffing. The Habitat and Engineering Division contains 24 positions (17 percent). The smallest of the field divisions is the Oyster Management Division, with a total of four employees, or three percent of staffing. The remaining two divisions, Administration and Finance and MIS, together represent 13 percent of the agency's workforce. VMRC had a total of four vacant positions as of September 1, 1996.

Natural Heritage Program. The DCR Natural Heritage Program had expenditures of \$1,733,819 in FY 1996. The program is funded through a combination of sources. The Natural Heritage Program receives a majority of its revenues from non-general funds. These include: federal contracts and grants; fees charged for conducting project reviews; and tax checkoff funds. These non-general funds account for 65 percent of total revenues to the program. The program also receives general funds, and funds resulting from a bond issue to be used to purchase natural area preserves.

The Natural Heritage Program has a total staffing level of 18 full-time equivalent employees (FTEs). Of these positions, 11 are general fund positions, and seven are non-general fund positions. The division also has 21 full- and part-time contract and wage positions.

Virginia Department of Agriculture and Consumer Services. VDACS has one staff position assigned to its Endangered Plant and Insect Program. This program received \$75,018 in general funds from VDACS in FY 1996 for staff salaries and research projects. In addition, the program received \$21,000 from federal Section 6 funds for endangered species research.

JLARC REVIEW

JLARC's review of the structure of natural resources agencies and their functions is based on three directives from the General Assembly. First, House Joint Resolution 173 (1996) directs JLARC to study the organization of the agencies and agency functions within the natural resources secretariat. HJR 173 calls for a review of the existing division of responsibilities and authority among the agencies, as well as consideration of various alternatives for changing the division of responsibilities. Second, Item 14 of the 1996 Appropriation Act directs JLARC to examine the permit and other fee structures used by the natural resources agencies. These directives broaden an earlier directive to review consolidation options between DGIF and VMRC that was mandated by Item 15 of the 1995 Appropriation Act.

This report focuses on wildlife management responsibilities within the secretariat. Specifically, it examines how wildlife management responsibilities are divided among DGIF, VMRC, the Natural Heritage Division of DCR, and VDACS; and whether changes to the current structure would result in improved wildlife resource management.

The study request directs JLARC to provide a progress report to the 1996

General Assembly and to each succeeding session until its work is completed. An interim report was presented to the 1996 Session which provided descriptive information about DGIF and VMRC. This report presents conclusions and recommendations regarding management of the Commonwealth's wildlife resources. A final report on other organizational structure issues in the natural resources secretariat is expected next year.

Study Approach

The study mandate directing the review of DGIF and VMRC focuses specifically on the issue of possible consolidation of the agencies, certain of their functions, or those of related agencies. The issues examined in this review address:

- areas of overlap in the functions of the two agencies or related agencies;
- consequences of overlap within each agency and with other State agencies; and
- options for alleviating problems and the potential impact of those options.

In determining the feasibility or need for consolidation, JLARC staff focused on the extent to which overlapping, or related, duties appear to be problematic. Specifically, the study issues focused on structural problems (for example, duplication and fragmentation) within DGIF and VMRC as well as with other agencies, such as the Department of Conservation and Recreation. Where problems were identified, recommendations have been presented aimed at enhancing wildlife resource management, improving customer service, and maximizing efficiency.

Research Activities

A wide range of research activities were undertaken to address the study mandate. These included: interviews with personnel from relevant government agencies and other organizations; document reviews; site visits; mail surveys of constituent organizations and law enforcement officers; and a review of the wildlife and fisheries management structures of other states.

These activities assisted the JLARC study team in compiling information about the agencies' responsibilities and structure. Information was gathered regarding areas of overlap, duplication, and fragmentation between various agencies. The research activities were also used to identify possible alternative approaches to the provision of wildlife and fisheries services in the Commonwealth.

Structured Interviews. Structured interviews were conducted with all of the management staff and several line staff from DGIF and VMRC. JLARC staff also conducted interviews with the wildlife-related DCR and VDACS staff, as well as staff

from related federal and local agencies.

Document Reviews. As part of the research process, JLARC staff reviewed several DGIF and VMRC internal reports and planning documents, studies conducted by other agencies and commissions, and the *Code of Virginia*. These documents provided the team with background information regarding the mission, structure, and operation of each agency.

A number of additional documents and data were also reviewed. These included: databases maintained by DGIF, VMRC, and the Natural Heritage Division; staff time allocation and activity data maintained by the agencies; agency position descriptions; memoranda of understanding adopted by the agencies; agency regulations; board meeting minutes; and agency financial data.

Site Visits. JLARC staff conducted site visits to augment information obtained from interviews and document reviews concerning law enforcement, resource management, and board activities of DGIF and VMRC. Site visits, including observation of law enforcement personnel, visiting a fish hatchery, meeting with DGIF staff in their regional offices, and attending board meetings, provided JLARC staff with detailed information about key functional areas within each agency. Site visits helped the study team in determining:

- how field staff in each agency divide their responsibilities;
- whether there is duplication in field staff duties; and
- how any recommended changes may impact field operations or governance in the respective agencies.

Mail Surveys. Surveys were conducted with two groups: constituent organizations and law enforcement officers. A survey was sent to 641 constituent organizations of agencies within the Secretariat of Natural Resources. Constituent organizations were defined as organizations with members or staff who engage in activities related to the responsibilities of, who use the services of, or have some interaction with staff of State natural resource agencies. The survey addressed the level of services provided and customer satisfaction. Of the survey respondents, 148 identified themselves as constituents of DGIF or VMRC. Of these respondents, 53 of the organizations identified themselves as a constituent to both DGIF and VMRC, an additional 66 organizations were constituents to only DGIF, and 29 were constituents to only VMRC.

A survey was also sent to all marine patrol officers and game wardens. This survey requested information on the specific activities performed by the two law enforcement groups. One hundred forty-five game wardens (86 percent) and 43 marine patrol officers (74 percent) completed the survey.

Review of Other States' Wildlife and Fisheries Structures. JLARC staff

reviewed information on the wildlife and marine resource agencies in other coastal states, and evaluated the findings of audits, program evaluations, and management studies that were conducted in these other states. Basic structural information on the wildlife and marine resource agencies in coastal states was included in the 1996 interim report.

REPORT ORGANIZATION

This report is organized into five chapters. This chapter has presented an overview of the division of responsibilities for wildlife management activities within Virginia. Chapter II discusses issues related to wildlife management on land, particularly work conducted on nongame species. Chapter III focuses on aquatic wildlife and habitat management issues. Wildlife-related law enforcement activities are discussed in Chapter IV. Finally, Chapter V concludes with a discussion of the feasibility of consolidating all of the Commonwealth's wildlife resource activities into a single department of wildlife resources.

II. Terrestrial Wildlife Management

Terrestrial wildlife management in Virginia involves the management of wildlife that survive on land, including plants, insects, and animals. There are three agencies that have responsibility for managing Virginia's terrestrial wildlife: the Department of Game and Inland Fisheries (DGIF), the Department of Conservation and Recreation (DCR), and the Virginia Department of Agriculture and Consumer Services (VDACS).

DGIF and DCR are both involved in managing animal species. DCR and VDACS both have endangered plant and insect responsibilities. In addition, DCR manages rare or significant communities. Further, DGIF provides enforcement support for regulations affecting animal, plant, and insect species.

This review has found that wildlife management in Virginia is inappropriately fragmented. Despite the similar qualifications and job responsibilities of DGIF nongame wildlife biologists and DCR Natural Heritage biologists, they do not adequately cooperate. Consequently, their research is not coordinated and they maintain duplicative data on many wildlife species. In addition, the VDACS endangered plant and insect program does not have adequate staff support, and relies on Natural Heritage staff for most of its research, and on DGIF for enforcement.

Therefore, these programs should be considered for consolidation into one agency. Since DGIF has statutory responsibility for all wildlife, including threatened and endangered animal species, and it has a statewide network of biologists and law enforcement officers that are involved in these activities, these programs should be consolidated within DGIF. However, the name, priorities, and funding of DGIF need to be changed to reflect a commitment to the management of all wildlife, instead of just game wildlife. DGIF's mission statement acknowledges that this should be a DGIF focus. There are opportunities to accomplish this goal without diminishing the attention given to game wildlife or changing the dedication of hunting and fishing license funds to game purposes.

DGIF AND DCR WILDLIFE MANAGEMENT

Both DGIF and DCR have responsibilities for wildlife management. DGIF has responsibility for managing game birds, game animals, fish, and other wildlife. DGIF is also responsible for regulating threatened and endangered animal species. DGIF has 67 full-time wildlife positions, who are responsible for managing game species; 67 full-time fisheries positions, who are responsible for managing sport fish species; and five full-time nongame positions, who are responsible for coordinating the threatened and endangered species, and other nongame work, that is conducted in each region.

DCR, through its Natural Heritage Division, has responsibility for preserving the natural diversity of biological resources of the Commonwealth. As such, they concentrate their efforts on rare, threatened, and endangered plant, insect, and animal species, and rare or significant natural communities and geologic sites. DCR's Natural Heritage Division has 18 full-time classified State positions and 21 full- and part-time contract and wage positions.

This review has found that DGIF nongame and DCR Natural Heritage staff conduct similar research and they both purchase lands for wildlife management. In addition, many DGIF staff other than nongame biologists have nongame responsibilities, including game wildlife biologists, fisheries biologists, and game wardens located throughout the State. However, despite these two agencies' extensive involvement in wildlife management, they do not cooperate adequately. Consequently, the provision of wildlife services by these agencies is not efficient.

DGIF Nongame and DCR Natural Heritage Staff Conduct Similar Research

DGIF nongame and DCR Natural Heritage staff have similar backgrounds and research responsibilities. Consequently, the agencies conduct research on many of the same species.

DGIF nongame staff are responsible for coordinating the management of all of the nongame wildlife in their region, and for managing specific species statewide for which they have expertise. For example, the DGIF nongame biologist in the Northern Virginia region is responsible for managing bald eagles statewide.

Sections 29.1-563 through 29.1-567 of the *Code of Virginia* give DGIF statutory responsibility for regulating threatened and endangered animal species. As such, DGIF nongame staff primarily concentrate on managing these species. Currently, there are 115 animal species listed as threatened or endangered by either the State of Virginia or the federal government.

To manage the species, DGIF nongame staff develop recovery plans, conduct and contract out population surveys, work with private landowners to create a beneficial habitat for species that are on their land, and manage the habitat on public lands. Habitat management on the public lands involves techniques such as planting, mowing, prescribed burning, and timber cutting to provide the optimum habitat for certain species to survive.

DCR's Natural Heritage program is part of an international network of natural heritage programs that were founded by state, provincial and national governments, tribes, universities, and other organizations, in cooperation with the Nature Conservancy, a nonprofit organization. Every state in the country has a Natural Heritage program, as well as six Canadian provinces and 14 Latin American and Caribbean countries.

DCR Natural Heritage staff have responsibilities throughout the State to inventory and preserve rare plant, animal, and insect species and natural communities. Natural communities are assemblages of rare and common species that exist within a surrounding habitat. Their research may be species-oriented, it may involve inventorying a certain area of land to determine what is there, or it may involve managing the habitat on the land for the species that are present.

Natural Heritage staff rank species and natural communities based on their rarity according to a consensus of the network of natural heritage programs, scientific experts, and the Nature Conservancy. They use these rankings to help prioritize their research. Since many rare species are also listed as threatened or endangered, Natural Heritage staff spend considerable time researching these species. Therefore, both agencies have trained biologists on staff who are significantly involved in conducting research on threatened and endangered species.

Both Agencies Purchase Lands for Wildlife Management

Both DGIF and DCR's Natural Heritage Division purchase and manage land. DGIF purchases land for wildlife management areas which are managed primarily for game species, but also for nongame species that may be on the land. DGIF currently owns more than 180,000 acres on 31 wildlife management areas, making it the largest State agency landowner. Hunting and/or fishing are allowed on all of these areas. However, specific sections of some of the wildlife management areas have been designated as non-hunting areas. For example, higher elevations at the Thompson Wildlife Management Area in Northern Virginia contain rare wildflowers which are a popular viewing attraction. Hunting is not allowed on these grounds.

The DCR Natural Heritage Division purchases land that contains rare species, natural communities, or land formations that need to be protected. These lands are designated as natural area preserves. Currently, DCR owns 16 natural area preserves throughout the State encompassing approximately 10,000 acres. Except for certain specific situations, hunting, fishing, camping, off-road vehicles, and removal or destruction of plants or animals is prohibited on all natural area preserves.

While the agencies have different purposes for purchasing and managing these lands, their goal is the same: to provide the optimum habitat to benefit the species that are on these lands. However, since the agencies have different purposes for owning the lands, they are not being used to their maximum extent. For example, DGIF staff have acknowledged that there is a significant probability that there are rare plant species on their wildlife management areas. However, because they do not have rare plant expertise on staff, many of these plants are unprotected.

Many DGIF Staff Are Involved in Nongame Work

While nongame wildlife management work at DCR is all performed within one division — the Natural Heritage Division — nongame wildlife management responsibilities extend throughout DGIF. In addition to the nongame biologists, many DGIF wildlife and fisheries biologists and staff, and law enforcement officers, are involved in nongame work.

Nongame work is not the priority of DGIF's wildlife and fisheries biologists, but they do collect nongame information in conjunction with their regular duties. For example:

The nongame biologist in southwest Virginia has statewide responsibility for managing nongame fish. As such, he relies extensively on the DGIF fisheries biologists located throughout the State to assist him with data collection. The fisheries biologists do not collect data in areas specifically for nongame purposes, but if they are in an area where there are species for which the nongame biologist needs information, the fisheries biologists will collect the necessary information. The nongame biologist indicated that recently, fish biologists have assisted in collecting information on several threatened and endangered species including the sharphead darter, the greenfin darter, the tippecanoe darter, the wood turtle, and the bog turtle. He said that while collecting nongame data is not a requirement for the game biologists, the department highly encourages this type of cooperation, and he has not had a problem with cooperation from any of the regions.

DGIF wildlife biologists are also involved in responding to citizen complaints about nuisance animals, which could be game or nongame. Examples of nongame nuisance animals include snakes and bats. Wildlife biologists near urban areas such as Richmond, Northern Virginia, and Hampton Roads spend considerable time responding to nuisance animal complaints.

JLARC staff reviewed DGIF time allocation data for FY 1995. This review found that 13 full- and part-time nongame staff spent 11,338 hours on nongame work. In addition, 82 full- and part-time game staff spent 4,650 hours on nongame work, for an average of 57 hours per person. Of this total, wildlife staff spent 2,606 hours on nongame work and fisheries staff spent 1,473 hours on nongame work. Therefore, it is clear that a number of DGIF staff spend time on nongame work.

In addition, DGIF's game wardens are involved with nongame work through enforcement of threatened and endangered species laws, exotic species laws, and responses to citizen complaints about nuisance animals. DGIF did not maintain data on the amount of time officers spent on these activities for most of FY 1995.

DGIF Nongame and DCR Natural Heritage Staff Do Not Adequately Cooperate

Despite the fact that the DGIF nongame and DCR Natural Heritage staff have similar backgrounds and similar wildlife management responsibilities, the staff from the two agencies do not have a good working relationship. When the Natural Heritage program was officially designated as part of DCR in 1988, the overlapping responsibilities of the two agencies were apparent, as evidenced by a memorandum of agreement signed by the directors of DGIF and DCR. This memorandum required DGIF and DCR staff to collaborate on a number of activities. For example, they were required to regularly exchange data and collaborate on their research activities (Exhibit 1).

However, none of the requirements stipulated in the memorandum of agreement have been adequately followed by the agencies. For example, the agencies do not exchange data as the agreement requires. Consequently, they are largely unaware of the data collected by the other agency and the capabilities of the other agency's information system.

Staff from both agencies reported that the relationship between them has been poor for years. The agencies' staffs have held meetings a few times in the past several years, but they have been unsuccessful in developing an adequate working relationship. Contact by staff in the field does occur, but it is minimal. Therefore, not only are they unaware of each others' data, but they are unaware of each others' research practices, management recommendations, and conservation priorities.

The Provision of Wildlife Services by These Agencies Is Not Efficient

Because there is considerable overlap in the responsibilities of the DGIF and DCR staff, and because they do not cooperate, the provision of wildlife services is not efficient. For example, the agencies maintain information on many of the same species, some of the information they maintain is duplicative, their research is inappropriately fragmented, they conduct duplicative project reviews, and they provide incomplete information to the public on certain species.

The Agencies Maintain Duplicative Information on their Databases.

Since there are millions of acres of land in Virginia and there are thousands of wildlife species, it is rare that DGIF and DCR staff conduct research on the same species at the same location. However, on their information system databases, they maintain data on many of the same species, and some of these data are duplicative.

DGIF's Fish and Wildlife Information System became operational in 1984. The species database within this system is known as BOVA, for "Biota of Virginia." In addition, DGIF has also developed a number of stand-alone fish and wildlife information applications such as the breeding bird survey and the cold water stream survey. These systems provide collection and location information, with trend analysis capabilities.

Exhibit 1**Cooperation Required by the Memorandum of Agreement Signed by DGIF and DCR in 1988**

- DGIF and DCR will exchange data necessary to accomplish the mission, goals and responsibilities of each agency as outlined in this agreement on a periodic basis.
- DCR will collaborate with DGIF on all requests of information concerning threatened or endangered species protected by state listing. Conversely, DGIF will collaborate with DCR on requests for information concerning said species.
- DCR will participate with DGIF in its review and prioritization of plans for research concerning management and recovery of threatened and endangered species prior to the implementation of such plans.
- DGIF will participate with DCR in its review and prioritization of plans for status survey and inventory of rare animal species prior to the implementation of such plans.
- DGIF will solicit recommendations from DCR for additions to or deletions from Virginia's list of endangered animal species. DCR will assist in the review of data for species recommended to DGIF for state listing or delisting prior to the adoption of regulations related to such activities.
- DCR will solicit recommendations from DGIF regarding sites that support rare and endangered animal species that are appropriate for state acquisition.
- On state lands owned by DCR, the two agencies will jointly participate in the development of management and surveillance plans for threatened and endangered animal species. DGIF will confer with DCR on any lands under DGIF jurisdiction that support rare species or unique natural communities.
- DCR will work with DGIF to make recommendations for the enhancement of educational/information programs that highlight the Commonwealth's cooperative animal species conservation efforts.
- DGIF and DCR representatives will schedule meetings (on at least a quarterly basis) to discuss items contained in this memorandum and ways to ensure (cooperation) to protect the Commonwealth's natural diversity.

Source: Memorandum of Agreement signed by the DGIF and DCR directors in August 1988.

DCR's Natural Heritage information system is known as the Biological and Conservation Data Management System (BCD). This system is part of an international network of natural heritage programs and conservation data centers spanning all 50 states and 15 other countries. This network's consistent methodology allows information to be shared and compared for purposes of establishing conservation priorities across

state and national boundaries. The network is configured to rank species and natural communities according to their rarity. DCR's Natural Heritage program joined this network in 1986 when the program was created in Virginia.

JLARC staff compared the 1995 DGIF and DCR species databases. This review found that the agencies maintain information on 521 of the same species (Table 3). This constitutes 37 percent of the species on DGIF's database and 30 percent of the species on DCR's database. For example, DGIF and DCR maintain information in their databases on 96 of the same fish species, 86 of the same gastropod species, and 71 of the same bird species.

Table 3

**Duplicative Species Maintained on the
1995 DGIF and DCR Databases**

Class	Number of Duplicative Species	Total Number of Species on DCR Database	Total Number of Species on DGIF Database
Amphibians	17	17	84
Annelids	0	4	0
Arachnids	0	14	0
Birds	71	71	368
Crustaceans	42	58	53
Fishes	96	97	227
Gastropods	86	87	126
Insects	50	283	135
Mammals	22	22	112
Marine Mammals	0	0	30
Millipedes	71	74	85
Mussels	47	47	101
Planarians	2	7	2
Plants	0	949	0
Reptiles	17	18	72
Spiders	0	21	0
Total	521	1,769	1,395

Source: JLARC staff analysis of DGIF and DCR species databases, as of September 1995.

The agencies' databases also contain similar data elements for each species. For example, for each species both databases contain at least the following information:

- scientific name,
- the number of species found in the State,

- the location of these species in the State, and
- threatened or endangered status.

Therefore, not only are the agencies collecting data on many of the same species, but they are collecting much of the same type of data for these species.

Further, some of the information the agencies maintain is duplicative. For example, Natural Heritage staff are required to obtain a permit from DGIF to enable them to collect a threatened or endangered specimen for review. A stipulation of the permit is that:

Written notification of identification/collection must be provided to [DGIF] within five working days after any specimen is positively identified. Notification must include collector, date of collection, county quadrangle, number of specimens, purpose of site, general habitat associations, and a photocopied [map] specifically identifying the location.

Consequently, the information that Natural Heritage staff collect from threatened and endangered specimens is being maintained by both agencies.

The Agencies' Research Is Inappropriately Fragmented. As mentioned previously, the agencies do not share their data, and they do not collaborate on their research findings or their management recommendations and techniques. As a result, species management in Virginia is hampered.

The current trend in biological research is to study ecosystems, rather than focusing research on an individual species. This involves studying the systems in which living and nonliving elements interact in a manner which sustains life. The living portion of an ecosystem occupying a certain area is called a natural community. Failure to consider the interdependence of animals, plants, and their physical surroundings could have unintentionally disruptive effects on some members of the ecosystem.

A Natural Heritage biologist provided an example of this:

Two or three years ago, DGIF had used herbicide to flatten a field, thereby creating a better environment for the endangered red-cockaded woodpecker. However, the herbicide caused extensive damage to some rare plants. The Natural Heritage biologist said that at the time, DGIF was unaware that these rare plants were present. Natural Heritage staff would have identified the rare plants prior to the use of the herbicide, but they were not consulted until after the procedure was completed. If DGIF had been aware of the rare plants on the site, they could have considered implementing habitat management techniques that may have saved the plants, while still benefiting the woodpecker.

Therefore, since the most effective wildlife management approach involves a broad, complete look at species and their surrounding environment, the research of plants, animals, and their physical surroundings that is conducted must be coordinated. Currently, this is not occurring because this research is being conducted by separate agencies that do not cooperate.

Project Reviews Are Duplicative. Since DGIF and DCR Natural Heritage staff maintain species information, they are both involved in reviewing projects that may affect wildlife. For instance, both agencies reported reviewing approximately 1,500 joint permit application and Virginia Department of Transportation projects during FY 1995. (A joint permit application is required to be submitted for any project that encroaches a submerged bottomland in Virginia — for example, the bottom of a stream, river, or lake.)

The agencies' process for completing the project reviews is similar. The agency responsible for issuing the permit, such as VMRC, will send a copy of the permit application to DGIF and DCR, asking for a comment on the application within a certain timeframe. DGIF and Natural Heritage each have staff who receive and analyze the applications, and then either complete it themselves or distribute it to an appropriate biologist within their department. The biologist assesses the project to determine its impact on the species or the habitat in the area.

DGIF staff review projects to determine their impact on game wildlife, sport fisheries, threatened and endangered animal species, and boating. Natural Heritage staff review projects to determine their impact on rare, threatened, or endangered plants, insects, animals, natural communities, or land formations.

According to VMRC staff, both DGIF and Natural Heritage are consulted to comment on many of the same joint permit application projects because they both have wildlife expertise. When information is needed on potential species in a project area, both agencies must be consulted. VMRC environmental engineers indicate that they occasionally receive conflicting information from DGIF and Natural Heritage on wildlife issues, but they do not think it is a major problem. However, it is clearly duplicative for two different agencies to be reviewing the impact of projects on wildlife species and habitats.

DGIF and DCR Provide Incomplete Information to the Public. In some cases, individuals or agencies request information from DGIF or DCR individually for a particular project or purpose. This occurs when, for example, the U.S. Army Corps of Engineers needs information for a project, or a private landowner wants information about species on a piece of land they own or want to purchase. Both agencies reported receiving hundreds of requests for wildlife information from the public during FY 1995. In these situations, most of the time only one of the agencies is providing information on a species. Since the agencies do not collaborate, the information provided could be incomplete.

DGIF staff reported that in some cases this is a significant problem. For example, they cite an agreement that Natural Heritage staff have with the U.S. Army Corps of Engineers whereby Natural Heritage provides information to the Corps of

Engineers to enable them to have access to rare and threatened and endangered species information for many of their projects. Often times, the Corps will not consult with DGIF for information on these projects. DGIF staff feel this is inappropriate because they are the agency with regulatory responsibility for threatened and endangered species, and they have information on threatened and endangered species that Natural Heritage does not have.

On the other hand, DGIF regularly provides information on wildlife species to the U.S. Federal Energy Regulatory Commission and to private consultants and landowners, without collaborating with DCR. This also results in the public receiving incomplete information because the Natural Heritage program maintains species information on its database that is not present on the DGIF database.

CONSOLIDATION OPPORTUNITIES IN TERRESTRIAL WILDLIFE MANAGEMENT

Given the similarities between the wildlife management functions of DGIF and DCR, the lack of cooperation between the agencies, and the inefficiencies in the provision of wildlife services, it is clear that these functions are inappropriately fragmented. Therefore, these functions should be consolidated.

In addition, this review has found that the other aspect of terrestrial wildlife management — plant and insect management — is also inappropriately fragmented. There are three agencies involved with this program. VDACS is responsible for administering and regulating the endangered plant and insect program, DCR Natural Heritage staff are responsible for conducting most of the research from which the regulations are based, and DGIF game wardens have primary responsibility for enforcing the regulations. Rather than having three agencies involved with this program, it makes sense to consolidate all the program functions within a single agency.

DGIF has the statutory authority and statewide network of biologists and law enforcement officers necessary to make it the State's wildlife agency. Therefore, it would be appropriate to consolidate the wildlife management functions of DCR and VDACS into DGIF. However, to effectively manage all wildlife species, DGIF needs to revise its priorities, change its name, expand its funding sources, and restructure its organization.

DGIF and the Natural Heritage Program Should Be Consolidated into One Agency

The problems identified are largely due to a lack of cooperation between two of the agencies with responsibilities for wildlife management. Although improved communication between the agencies would enhance the situation, the agencies have not shown that they are capable of achieving an appropriate level of cooperation. To ensure the most efficient provision of services, these functions should be handled by one agency.

There are many advantages to having the expertise of these staff within one agency. For instance:

- Public and private entities would only have to go to one agency for wildlife information.
- The wildlife information maintained by the State and provided to the public would be more accurate and complete.
- Species recovery efforts would be improved because the biologists would have access to all information collected in the State on that species.
- Rare plants and natural communities on the wildlife management areas could be identified and protected.
- The Natural Heritage program would be able to coordinate its field research with DGIF's statewide network of game and nongame biologists.

Consolidating these functions into a single department would conform Virginia's wildlife management structure with the majority of other states. According to a survey conducted by DGIF staff, the nongame and natural heritage programs are within the same department in 60 percent of the states nationwide. In 19 states, the programs are in the same department, but in a different division. In 11 states, the programs are in the same division within the same department. The programs are in separate departments in the other 20 states.

The VDACS Threatened and Endangered Plant and Insect Program Should Also Be Consolidated with the DGIF and DCR Functions

Sections 3.1-1020 through 3.1-1030 of the *Code of Virginia* designate the Virginia Department of Agriculture and Consumer Services as responsible for administering the Endangered Plant and Insect Species Act. However, DCR Natural Heritage staff conduct most of the endangered plant and insect research, and DGIF game wardens have primary responsibility for enforcing the Act's regulations. Therefore, this program would be administered more efficiently if it were consolidated with the DGIF and DCR threatened and endangered species responsibilities. Further, since the program's focus is on preservation, it would be more appropriately placed within the natural resources secretariat than within the commerce and trade secretariat.

VDACS Has Only One Staff Person Assigned to this Program. VDACS has one FTE assigned to administer the Endangered Plant and Insect Species Act. This position's responsibilities are to:

- recommend to the Board of Agriculture and Consumer Services which species should be listed and regulated as threatened and endangered,

- contract out research projects on specific species,
- coordinate with experts in the field to determine the impact of certain projects on threatened and endangered plants and insects, and
- work with landowners to develop plans to protect such species.

Currently, there are 24 plant species and six insect species listed as threatened or endangered by either the State of Virginia or the federal government.

The Majority of Plant and Insect Research Is Conducted by Natural Heritage Staff. Since there is only one VDACS staff person assigned to endangered plants and insects, Natural Heritage staff have significant involvement with the Endangered Plant and Insect Species Act. In fact, the *Code of Virginia* requires DCR to provide input regarding candidate species for listing.

In FY 1996, the Endangered Plant and Insect program received \$21,000 from the U.S. Fish and Wildlife Service's (USFWS) Section 6 funds for research and recovery projects. (The USFWS appropriates Section 6 funds to the agency in each state that has responsibility for regulating threatened and endangered plant and insect species.) Eighty-two percent (\$17,167) of the \$21,000 was distributed to the Natural Heritage program to research species such as the Northern joint vetch (a flower), Peter's Mountain mallow (an herb), Virginia sneezeweed (an herb), and the regal fritillary (a butterfly).

The Natural Heritage Division has a number of staff with plant and insect expertise including three botanists, an ecologist, and two zoologists. By 1995, these staff had accumulated information on 949 plant species and 283 insect species.

In addition to the work performed for VDACS, Natural Heritage staff received funding from additional sources to conduct considerable other plant and insect work in FY 1996. For example:

- They conducted a survey of the Northeastern Beach tiger beetle that was funded by the U.S. Fish and Wildlife Service.
- They worked on a study of shale barrens (herbs) on the George Washington National Forest that was funded by the U.S. Fish and Wildlife Service and the U.S. Forest Service.
- They conducted a study of the small-whorled pogonia (a flower) on the Quantico Marine Base that was funded by the U.S. Department of Defense.

It is clear that Natural Heritage staff have considerably more threatened and endangered plant and insect research expertise than VDACS. Rather than having the funding go to VDACS to be redistributed to other agencies, it would be more efficient for the funding to go to a department which could use most of the funds, and subcontract out the remaining funds accordingly.

DGIF Game Wardens Have Primary Responsibility for Enforcing Endangered Plant and Insect Species Act Regulations. Section 3.1-1029 of the *Code of Virginia* stipulates that any game warden, or other law enforcement officer, may enforce the regulations promulgated under the Endangered Plant and Insect Species Act. The VDACS Endangered Plant and Insect program staff person indicated that, although other law enforcement agencies are involved, DGIF game wardens have primary responsibility for enforcing these regulations. However, DGIF does not appear to make this a priority.

For example, on the JLARC survey of game wardens, 46 percent reported that they are inadequately trained in threatened and endangered species laws, and 46 percent reported they are inadequately trained in species identification. In addition:

One game warden reported that he would like DGIF to become more involved in protecting endangered plant species. He said he is especially concerned about the ginseng species because he is worried that loggers in the area will clean the plant out of his county. The game warden does not work to protect this species because it is not a priority of the department.

Since DGIF has no involvement in the Endangered Plant and Insect Species Act, other than enforcement, it is not surprising that enforcement of these regulations would not be a priority.

The Threatened and Endangered Plant and Insect Program Should Be Located in a Natural Resources Agency. According to Section 3.1-1025 of the *Code of Virginia*, the major responsibility of the administering agency of the Endangered Plant and Insect Species Act is to adopt regulations to list and control the harvest of threatened or endangered plant and insect species. In addition, the agency is encouraged to conduct investigations of species of plants and insects in order to develop information relating to the population, distribution, habitat needs, limiting factors, and other biological and ecological data in order to determine management measures necessary to ensure their continued ability to sustain themselves successfully.

These responsibilities are clearly aimed at protecting a natural resource, and therefore, it appears this program would be more appropriately housed in a natural resources agency. Rather than having one agency responsible for regulating the program, a different agency responsible for conducting the research from which the regulations are based, and a third agency responsible for enforcing the regulations, it makes sense to consolidate all the program functions within a single agency whose mission is consistent with the intent of the Act. This will enable the research staff to have adequate input into research and regulation decisions, and should improve enforcement of the regulations.

Virginia's Terrestrial Wildlife Management Functions Should Be Consolidated Within DGIF

DGIF has the statutory authority and the statewide network of wildlife and fisheries biologists and law enforcement officers necessary to make it the State's wildlife management agency. Therefore, it would be appropriate to consolidate the wildlife management functions of DCR and VDACS into DGIF. However, to effectively manage all wildlife species, DGIF needs to revise its priorities, change its agency name, expand its funding sources, and restructure its organization.

DGIF's Priorities Need to Reflect a Commitment to All Wildlife. Although DGIF management indicate that their department should be the State's wildlife management agency, and the department's mission is to manage all wildlife, their priorities clearly favor game work over nongame work. There is an understandable reason for this, given that the department is almost entirely funded from hunting and fishing license sales. However, for the department to effectively manage all wildlife, its priorities must reflect a commitment to all wildlife. In addition, the *Code of Virginia* needs to be amended to better clarify this agency's priority to all wildlife.

As previously mentioned, DGIF has a nongame program of five full-time biologists, and a number of its game staff spend time on nongame duties. Despite this, the department's priority is clearly on game activities. In fact, every member of DGIF's top-level management indicated that their priority is to serve the hunters and anglers that purchase licenses. The department's top-level management and its board have been appointed in accordance with this priority, and its organizational structure has been created to reflect this priority.

As a result, DGIF's nongame program has not been accorded the stature or staffing of game wildlife and fisheries. Until 1995, there was no separate nongame program at DGIF. There were two or three full-time nongame biologists who worked within the wildlife and fisheries divisions. In July 1995, the nongame staff were placed in the Wildlife Information and Enhancement Division, under a supervisor who is also responsible for managing the agency's environmental review function, and two additional nongame biologist positions were added. The department did not create a separate division for the nongame program, as it has for game wildlife and fisheries.

Further, in an agency with over 400 authorized positions, only five are assigned full-time to nongame activities. This is despite the fact that the majority of wildlife species are nongame species. For example, according to DGIF, only 85 (16 percent) of the 526 bird and mammal species in Virginia are game species, and only 60 (27 percent) of the 225 freshwater fish species in Virginia are game or sport species.

To help refocus the department, the *Code of Virginia* should be amended to reflect a clear responsibility for all wildlife. Section 29.1-566 of the *Code of Virginia* gives DGIF responsibility for managing threatened and endangered animal species. Section 29.1-103 of the *Code of Virginia* gives DGIF responsibility for conducting "operations for the preservation and propagation of game birds, game animals, fish and other wildlife in

order to increase, replenish and restock the lands and inland waters of the Commonwealth.” DGIF derives its authority for managing all wildlife from these sections.

To better reflect its responsibility for all wildlife, Section 29.1-103 of the *Code of Virginia* should be amended to specify that DGIF’s primary responsibility is to “conduct operations for the preservation and propagation of all wildlife and natural heritage resources.” Both game and nongame activities would be included in this responsibility.

DGIF Should Change Its Name to the Department of Wildlife Resources.

To reflect its broader responsibilities, DGIF should change its name to the Department of Wildlife Resources. A 1990 DGIF survey of the general public found that this is the most favored name for the department. In the survey, the question on agency name preference immediately followed a series of questions which asked the respondent to rate the importance of a number of agency program areas or functions. Three names were given as choices:

- “Department of Wildlife Resources,” which was favored by 51 percent of the respondents;
- “Department of Game and Inland Fisheries,” favored by 26 percent of the respondents; and
- “Department of Fish, Wildlife, and Boating,” favored by 24 percent of the respondents.

DGIF management reported that this name would more accurately portray an agency that has a commitment to all wildlife, rather than game wildlife. In fact, a DGIF planning document completed in 1993, titled “2003: A Vision for the Future,” recommended that the department’s name be changed to the Department of Wildlife Resources.

The Board’s Name and Structure Should Also Reflect the Department’s Broad Responsibilities. In accordance with the department’s name change, the Board of Game and Inland Fisheries should be changed to the Board of Wildlife Resources. Further, to reflect the department’s broad wildlife mission, the General Assembly may wish to consider changing the *Code of Virginia* to require that the board have wide-ranging representation from hunting, fishing, and wildlife conservation organizations. For example, the board could be required to consist of at least two hunting association representatives, two fishing association representatives, and two representatives from wildlife conservation organizations.

DGIF Needs to Expand Its Funding Sources. As previously indicated, DGIF is almost entirely funded by hunting and fishing license fees. DGIF funds its nongame program with nongame tax checkoff funds and federal funds. DGIF staff estimate that they have enough of these funds to support the Natural Heritage program for two years, but not longer. It would not be appropriate to require hunters and anglers to fund

nongame work. Therefore, for DGIF to absorb the wildlife management functions of DCR and VDACS, it needs to expand its funding sources.

The 1993 Session of the General Assembly passed HJR 444 establishing a select committee of the House Committee on Conservation and Natural Resources and the Senate Committee on Agriculture, Conservation and Natural Resources to assess the long-range financial status of the Game Protection Fund. To assist the select committee in formulating its funding recommendations, officials of DGIF were invited to testify on the agency's needs and the measures being contemplated to meet these projected needs.

DGIF identified five possible additional funding sources: general funds, watercraft sales and use tax, percent of sales tax collected on the sale of recreation equipment, specific license increases, and facilities use permits for wildlife management area visitors that do not hunt, fish, or boat. Three of these sources — general funds, percent of sales tax collected on the sale of recreation equipment, and a facilities use permit for wildlife management area visitors that do not hunt, fish, or boat — could be used to fund nongame activities. The watercraft sales and use tax has been implemented. However, the other fund sources have yet to be obtained.

Absent these additional sources, if the Natural Heritage and Endangered Plant and Insect programs are merged with DGIF, the department should receive the current level of funds these programs receive, including general funds as a permanent transfer from the other agencies. These programs should continue to receive general funds because there is a statutorily defined need for the State to provide research to preserve and to determine the effect of projects on its natural heritage resources, including endangered plants and insects. Further, these are activities which benefit the whole citizenry of the Commonwealth. These revenues should be used to fund the nongame activities of the department.

The Department's Organization Should Reflect Commitment to Managing All Wildlife. The Department's commitment to managing all terrestrial wildlife should be reflected in its organizational structure. The department's organization should include a division which would house only Natural Heritage, DGIF nongame, and VDACS endangered plant and insect program staff. As previously indicated, DGIF did not make the nongame function a division within its department when it consolidated its nongame staff. However, the Department of Wildlife Resources should incorporate Natural Heritage as a separate division, to reflect its commitment to all wildlife.

The DGIF Nongame and DCR Natural Heritage Program Structures Do Not Have to Change. The Natural Heritage program and the DGIF nongame program are structured differently — Natural Heritage staff are centralized, whereas DGIF nongame staff are regionalized. However, if the programs are consolidated into a single division, their structures do not necessarily have to change because each program's structure works sufficiently.

Most Natural Heritage staff are centralized within a Richmond office. These staff have expertise in a particular field that is applied to the entire State. For instance,

the program staffs botanists, zoologists, ecologists, and stewardship biologists who do not concentrate on particular species, but rather on a field of expertise. The Natural Heritage program receives most of its funding from federal grants which fund various research projects throughout the State. Because the federal studies require expertise in several biological fields, each biologist has project responsibilities in many areas around the State.

For example, a federally funded study of the Grafton Ponds area in York County required the expertise of the Natural Heritage ecologist, zoologist, and stewardship biologist, in addition to experts from other agencies. Likewise, a federally funded species inventory on several rivers in the city of Chesapeake has involved a Natural Heritage botanist, ecologist, and zoologist.

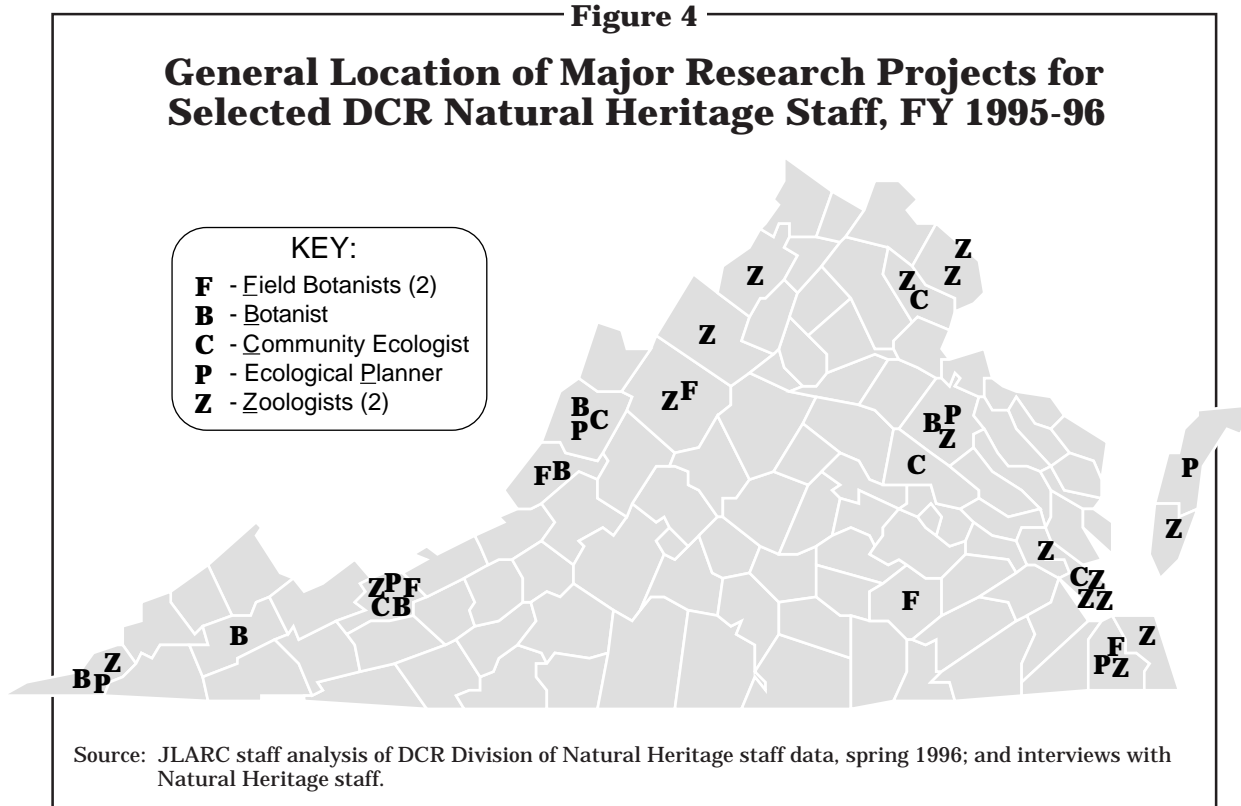
The staff that are specialized in a particular discipline are regionalized. For example, the karst (cave) protection specialist is based in southwest Virginia, where most caves are found.

Figure 4 shows the locations of the major projects that the Natural Heritage staff have conducted over the past two years. It is clear from the map that several of the centralized staff work on projects located throughout the State. For example, the ecological planner has recently worked on projects on the Washington and Jefferson National Forests, in the city of Chesapeake, in Caroline County, in Lee County, and on the Eastern Shore.

In addition, Natural Heritage staff report that the strength of their program lies in their ability to access their centralized hard copy information and maps, and to have daily contact to discuss the various aspects of the natural communities they are studying. For example, to discuss how to manage a particular natural community, they would need to have a botanist, a zoologist, an ecologist, and a stewardship biologist present.

On the other hand, the DGIF nongame biologists are regionalized. They are located where their species of expertise is most commonly found. Therefore, most of their work is within their region. If they need information from areas outside their region, they consult with the other nongame biologists, the wildlife biologists, or the fisheries biologists in the different regions throughout the State.

It appears that if these programs were consolidated, the programs' structures would not have to change. The staff could coordinate their work through the existing structure. The nongame biologists could remain in the regions, providing expertise on their designated statewide species and coordinating the research on threatened and endangered species in their region. The Natural Heritage staff could remain centralized, and could coordinate their research with the regional staff. Natural Heritage staff could also provide technical expertise to all the regions on items such as plant management and prescribed burning, which would be useful to DGIF game and nongame staff throughout the State.



Recommendation (1). The General Assembly may wish to amend Sections 29.1-100 through 29.1-111 and Sections 10.1-209 through 10.1-217 of the *Code of Virginia* to consolidate the Department of Conservation and Recreation's Division of Natural Heritage into the Department of Game and Inland Fisheries.

Recommendation (2). The General Assembly may wish to amend Sections 29.1-100 through 29.1-111 of the *Code of Virginia* and Sections 3.1-1020 through 3.1-1030 of the *Code of Virginia* to require the Endangered Plant and Insect Species program to be transferred from the Virginia Department of Agriculture and Consumer Services to the Department of Game and Inland Fisheries. The one VDACS position responsible for administering this program should also be transferred to DGIF.

Recommendation (3). The General Assembly may wish to amend Sections 29.1-100 through 29.1-827 of the *Code of Virginia* to require the name of the Department of Game and Inland Fisheries to be changed to the Department of Wildlife Resources.

Recommendation (4). The General Assembly may wish to amend Sections 29.1-100 through 29.1-111 of the *Code of Virginia* to require the primary responsibility of the Department of Wildlife Resources to be to

conduct operations for the preservation and propagation of all wildlife and natural heritage resources.

Recommendation (5). The General Assembly may wish to amend Sections 29.1-102 through 29.1-108 of the *Code of Virginia* to change the name of the Board of Game and Inland Fisheries to the Board of Wildlife Resources. Further, the General Assembly may wish to consider requiring that the board consist of at least two hunting association representatives, two fishing association representatives, and two wildlife conservation association representatives.

Recommendation (6). If the DCR Natural Heritage and the VDACS Endangered Plant and Insect programs are transferred to the Department of Game and Inland Fisheries, DGIF should create a separate division which would include the Natural Heritage and VDACS staff, as well as its current nongame staff.

Recommendation (7). If the DCR Natural Heritage and the VDACS Endangered Plant and Insect programs are transferred to the Department of Game and Inland Fisheries, their positions and funding should be transferred and then maintained as needed at DGIF.

III. Aquatic Wildlife and Habitat Management

There are two State agencies responsible for the management of the Commonwealth's aquatic resources — the Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resources Commission (VMRC). Generally, DGIF is responsible for inland, or freshwater, fisheries while VMRC is responsible for marine, or saltwater, fisheries. This review has found that there is overlap of the fisheries responsibilities of these two agencies. In addition, while VMRC is responsible for submerged bottomlands statewide, the agency shares submerged bottomland protection efforts with DGIF. A number of problems resulting from this overlap have been identified, resulting in resource management and protection problems and hampered service to constituents.

AQUATIC WILDLIFE MANAGEMENT

DGIF and VMRC both have primary responsibility for the fisheries resources in the Commonwealth. The *Code of Virginia* gives DGIF responsibility for managing all aquatic species in the inland waters of the State. The *Code* defines inland waters as “all waters above tidewater and the brackish and freshwater streams, creeks, bays, including Back Bay, inlets, and ponds in the tidewater counties and cities.” This definition generally means that DGIF is responsible for all freshwater aquatic species.

In managing freshwater species, DGIF fisheries staff collect data assessing fish health and populations, conduct research on fisheries, stock fish reared in department-operated hatcheries into inland waters, develop freshwater fisheries regulations, manage aquatic habitat (including aquatic plants), conduct a citation program for recreational anglers, conduct educational programs about fishing, interact with constituent groups, and permit aquaculture.

Section 28.2-101 of the *Code of Virginia* defines the basic responsibilities of VMRC, specifying that:

The jurisdiction of the Commission shall include the Commonwealth's territorial sea and extend to the fall line of all tidal rivers and streams except in the case of state-owned bottomlands where jurisdiction extends throughout the Commonwealth. The Commission shall have jurisdiction over all commercial fishing and all marine fish, marine shellfish, marine organisms, and habitat in such areas.

The fisheries staff of VMRC are responsible for collecting landings data on commercial and recreational fisheries, conducting stock assessments, drafting commercial and recreational marine fishing regulations, developing management plans for selected marine species, working with interstate fisheries management groups, such as

the Atlantic States Marine Fisheries Commission, and working with constituent groups. They also build and deploy artificial reefs, conduct a citation program for recreational anglers, permit certain aquaculture, and conduct educational outreach activities related to fishing.

Review of the fisheries-related activities of the two agencies found minimal problems with duplication of specific activities. However, a number of the fisheries responsibilities of the agencies are highly related or overlapping, resulting in a fragmented approach to fisheries management in Virginia.

DGIF and VMRC Fisheries Divisions Have the Same Goal

Both DGIF and VMRC have the same goal with regard to their fisheries management efforts: to provide the maximum benefit and long-term use of the fisheries. This goal is applied to freshwater fish by DGIF and marine fish and shellfish by VMRC. The goal reflects an orientation toward the human use of the fisheries. For DGIF, the focus is recreational anglers. For VMRC, the focus is both recreational and commercial fishermen.

Both DGIF and VMRC Manage Recreational Fisheries

As mentioned in Chapter I, many people both from within and outside of the State participate in freshwater and saltwater recreational fishing. While the number of freshwater anglers has been somewhat stable in recent years, the number of saltwater anglers appears to be increasing. Although some of this increase may be due to increased awareness of the need for a license, additional data from the U.S. Fish and Wildlife Service suggests that saltwater recreational fishing has been increasing over the long term.

Fisheries management is important to the continued enjoyment of recreational fishing in Virginia, and in turn, the economic benefits derived from fishing. Although DGIF has traditionally been thought of as the recreational fishing agency for the State, in fact both DGIF and VMRC are responsible for recreational fisheries management. Generally, DGIF regulates freshwater sport fishing, while VMRC regulates marine sport fishing. However, their responsibilities overlap with regard to some fish species. For example, both agencies have regulations pertaining to striped bass since this species is found in both freshwater and saltwater.

Also, both agencies require a recreational fishing license — a saltwater license for VMRC-controlled waters and a freshwater license for DGIF-controlled waters. Proceeds from these licenses are used by the agencies to conduct research on and make improvements to recreational fisheries. For example, some of VMRC's saltwater license revenues are provided to DGIF for them to build and maintain boat landings and piers in saltwater areas.

The agencies use common land markers, such as bridges, to identify where one agency's regulations end and the other's begin on the tidal rivers. However, in the case of freshwater and saltwater recreational licenses, areas have been designated in tidal tributaries where either license can be used. This overlapping designation takes into account that fish species do not respect arbitrary boundary lines in rivers, beyond which they will not cross.

This overlapping designation also was developed as a convenience to anglers. For example:

In some bodies of water, an angler could first catch a freshwater fish, and then the next catch could be a saltwater fish. Under this circumstance, it would be difficult to determine which license would be appropriate.

Despite the overlapping designation in certain waterways, there remain other bodies of water where, for example, freshwater fish would be caught even though the angler was required to have a saltwater fishing license.

Many Types of Activities Undertaken by DGIF and VMRC to Manage Fisheries Are the Same or Similar

Although generally working in different bodies of water, both DGIF and VMRC fisheries staff perform a number of activities which are similar. For example, both agencies: compile data on fisheries; contract with universities for fisheries research; draft fisheries regulations; provide comments on proposed bottomlands activities; have citation programs for recreational anglers; permit aquaculture; interact with fishing constituents; and conduct fishing education work. Table 4 identifies the major activities undertaken by the fisheries staffs.

It is evident that the basic methods of fisheries management can be and are applied to a variety of environments. As reported by one fish biologist:

The skills learned in school apply to freshwater and saltwater. Principles of fisheries management are the same.

That may be one reason why both marine and freshwater fisheries managers, including staff from VMRC and DGIF, belong to the same professional fisheries organization — the American Fisheries Society.

However, there also are some distinct responsibilities inherent in managing species inland as compared to marine waters. For example, DGIF staff raise fish in hatcheries for stocking in inland waters. This activity would not make sense for VMRC to undertake since the vastness of the coastal waters would preclude any noticeable increase in the number of fish. In contrast, VMRC staff work with interstate organizations, such as the Atlantic States Marine Fisheries Commission and Chesapeake Bay

Table 4

Fisheries-Related Activities Performed by DGIF and VMRC

Fisheries Related Activities	DGIF	VMRC
Collect data concerning fish populations	✓	✓
Draft fishing regulations	✓	✓
Conduct or contract out fisheries research	✓	✓
Provide comment on environmental projects	✓	✓
Manage aquatic reptiles and amphibians	✓	✓
Assist with habitat management and control, including research thereon	✓	✓
Conduct citation program for recreational anglers	✓	✓
Interact with fisheries constituents	✓	✓
Conduct aquatic/fishing education	✓	✓
Issue special fishing permits	✓	✓
Issue aquaculture permits	✓	✓
Stock inland streams and lakes	✓	
Manage fish hatcheries	✓	
Manage Urban Fishing Program	✓	
Monitor and track commercial finfish and shellfish catches		✓
Manage Artificial Reef Program		✓
Provide information and participate in interstate marine fish commission meetings		✓
Monitor and provide support for containerized shellfish relaying program		✓
Inspect seafood dealer records		✓

Key: Activities marked with a check (✓) are conducted by the agency.

Source: JLARC staff analysis of DGIF and VMRC fisheries staff interviews and position descriptions.

Commission, since the species they manage tend to be highly migratory. In fact, much of the fisheries management planning conducted by VMRC is conducted in concert with, and in many cases is controlled by, these interstate organizations.

Agencies Have Overlapping Constituencies

There are a variety of constituent groups that have an interest in the activities of DGIF and VMRC fisheries staff. They include recreational and commercial fishermen, conservationists, and local and State government agencies.

In citing differences between the two agencies and why they should not be consolidated, DGIF and VMRC management staff reported that each agency has

different constituents. DGIF reported that recreational anglers are the primary constituent group for their fish division. VMRC cited commercial fishermen as their primary constituent group. However, based on the JLARC staff survey of constituent associations, there appears to be significant overlap in the constituencies of the two agencies.

As previously noted, JLARC staff conducted a survey of constituencies of agencies within the Natural Resources Secretariat. Of those constituent associations responding to the survey, 148 reported having some involvement with DGIF and/or VMRC. Specifically, 66 responded that they were constituents of DGIF only, 29 responded that they were constituents of VMRC only, and 53 reported being constituents of both agencies.

The 53 constituent associations that interact with both agencies are varied in purpose. They include recreational and commercial fishing groups, local and regional government planning departments, conservation groups, private industry, and boating clubs. These groups generally interact with DGIF and VMRC for the same basic reasons: to comment or request information about a regulation, to obtain fishing information, or to obtain general information about agency activities.

Many of the constituent associations of only DGIF were involved with that agency for issues other than fishing (such as hunting). Most of the VMRC-only constituent associations were involved in commercial fishing work. However, a few commercial fishing groups reported interaction with DGIF in addition to VMRC.

The overlap in recreational angler constituents appears to be recognized by the agencies. DGIF now publishes VMRC's recreational saltwater fishing regulations together with its freshwater fishing regulations. The agencies reported starting this practice as a convenience to their constituents and as a cost-saving measure. In addition, VMRC contracts with DGIF to administer the saltwater recreational fishing license through DGIF's license agents for freshwater fishing.

These practices imply an understanding that there is overlap in the anglers fishing in freshwater and saltwater. Further, it means that many constituents have to contact two different agencies for information related to their interest in fishing or boating.

Overlapping Responsibilities Lead to Problems

Given that fish move freely across the jurisdictional lines of State agencies, it is not surprising that there would be a significant potential for overlap in the fisheries responsibilities of DGIF and VMRC. This overlap has caused problems in some cases. For example, there are inconsistencies in regulations due to both agencies regulating the same species. The involvement of two agencies in regulating the same body of water — Back Bay — has led to some further confusion. Also, the *Code of Virginia* is unclear as to which agency has primary responsibility for threatened and endangered marine

organisms. And finally, having both agencies involved in fish aquaculture makes for inefficient permitting practices.

Overlapping Responsibility for Some Species Requires Cooperation Between DGIF and VMRC. There are a number of ways in which each agency's management of fisheries overlaps. First, there are some freshwater species found below the fall line, which is technically VMRC's jurisdiction, that DGIF manages. Second, VMRC collects landings data on certain freshwater species that are caught commercially in the tidal rivers. Third, both agencies conduct research and compile information on anadromous fish species. Anadromous fish are fish that generally live their adult lives in saltwater, but travel upstream to spawn. The following is an example of overlapping fisheries management:

Catfish are freshwater fish species which are found above and below the fall line in tidal rivers. VMRC collects commercial landings data on catfish and also has authority to regulate the gear used to catch catfish, such as fish pots. However, VMRC staff reported that they do not have authority to regulate catfish species, even if they are located below the fall line. DGIF has responsibility for conducting research on and regulating catfish species regardless of where they are located.

These points of overlap show the difficulty in setting a boundary for the division of fisheries responsibilities between DGIF and VMRC. These areas of overlap can lead to inconsistencies in the management of certain fisheries. For example:

DGIF and VMRC have differing regulations governing the taking of striped bass above and below the fall line. Staff reported that the difference in DGIF's and VMRC's recreational striped bass regulations was due to the timing of when each agency's regulations were issued. DGIF issued its regulations prior to VMRC's determination that the striped bass stock would support a two-fish possession limit in certain seasons. As a result, VMRC's regulations allow a possession limit of two striped bass, while DGIF's regulations do not allow for any striped bass possession. The outcome is differing treatment of recreational anglers depending on where on a river the anglers decided to fish.

This problem is due to having two separate boards and staff addressing the management of the same species.

For species and waterways for which both agencies have an interest or plan to regulate, the respective fisheries staff should discuss their research plans and data on a regular basis. This open dialogue will help ensure that both agencies have all the information available for determining the best management strategies for each fishery and that research conducted is well planned and needed. Although not a guarantee, this will also help ensure that the regulations issued by each agency are consistent.

Overlapping Responsibilities in Back Bay Need to Be Addressed. Both freshwater and saltwater aquatic species live in Back Bay. The *Code of Virginia* gives responsibility for management of Back Bay to DGIF. However, in practice both DGIF's and certain of VMRC's regulations are in effect in this water because commercial fishing occurs there. Specifically, VMRC regulations concerning crab and eel pots and commercial waterman licenses must be followed. In addition, DGIF regulates the use of gill nets for commercial purposes in this body of water. This is the only body of water for which DGIF regulates commercial fisheries.

The application of both DGIF and VMRC regulations in this area has caused confusion among law enforcement staff. Both marine patrol officers and game wardens provide law enforcement coverage on this water. However, there appears to be confusion as to which agency's regulations to enforce. Both agencies have gill net regulations which differ as to mesh size. Marine patrol officers reported imposing VMRC's gill net regulations when, in fact, DGIF's gill net regulations apply to this body of water.

The case of Back Bay illustrates the problem with trying to delineate responsibilities between two agencies when there is no clear distinction that can be made. There are both freshwater and saltwater species present in Back Bay, and commercial and recreational fishing occur. Further, the water has been designated as freshwater when it also has tidal qualities, since it flows out to Albemarle Sound in North Carolina. This overlap points to a need, at a minimum, for better coordination between DGIF and VMRC concerning their regulations. However, it also raises questions as to why two separate agencies should be involved in managing the fisheries of the same body of water.

Recommendation (8). VMRC and DGIF should develop a memorandum of understanding concerning the regulations applicable to Back Bay and any other bodies of water where both saltwater and freshwater species are present. If possible, the agencies should resolve differences between their respective commercial gill net regulations. All agency staff should be made aware of the regulations which are in effect in Back Bay and other similar waters.

Responsibility for Threatened and Endangered Marine Organisms Should Be Clarified. The *Code of Virginia* gives VMRC responsibility for all marine organisms. However, the *Code* gives DGIF responsibility for all threatened and endangered species, of which some are marine species.

There are 12 marine mammals and sea turtles which are on the federal threatened or endangered species list. However, there are currently no State-listed threatened or endangered marine organisms. This raises a question as to whether there are simply no marine species which warrant being placed on the State list, or whether, due to the lack of clear research responsibility assigned to any one agency, a gap in service has occurred.

Currently, DGIF, VMRC, and the Virginia Institute of Marine Science (VIMS) at William and Mary, as well as various federal agencies, are all involved to varying

degrees in work on threatened and endangered marine species. For example, DGIF received grant funding to develop a marine mammal plan. The plan was written primarily by VIMS staff, with assistance from VMRC and DGIF staff as well as other State and federal agency staff. This plan identifies actions needed to protect these species as well as attempts to identify each agency's responsibilities with regard to sea turtles and marine mammals. The plan states that:

VMRC at the state level and [National Marine Fisheries Service (NMFS)] at the federal level have regulatory responsibility for all marine life, including sea turtles and marine mammals. When sea turtles are on land, however, VDGIF and [United States Fish and Wildlife Service (USFWS)] assumes regulatory responsibility for these species. Stranding therefore becomes an area of joint concern. Accordingly, VMRC and NMFS have responsibility for all marine mammals except the manatee, for which VDGIF and USFWS share responsibility. It is recommended that [memoranda of understanding] be developed between VDGIF, VMRC, and VIMS clearly stating their roles and responsibilities as well as their recognition of such roles.

Although called for in the plan, no memoranda of understanding have been developed to clearly delineate each agency's responsibilities.

DGIF, VMRC, and VIMS need to work together to develop a clear delineation of responsibilities for all threatened and endangered marine organisms. The *Code of Virginia* should then be revised to reflect that delineation of responsibilities. This approach will help ensure that there are no gaps in the provision of threatened and endangered species work in the Commonwealth.

***Recommendation (9).* DGIF, VMRC, and VIMS should develop a memorandum of understanding which details the responsibilities of each agency for threatened and endangered species. Once the agencies have appropriately delineated responsibilities, they should seek changes to the *Code of Virginia* which would reflect the agreed-upon agency responsibilities.**

Fish Aquaculture Permitting Responsibilities Should Be Consolidated in DGIF. Both DGIF and VMRC are involved in the permitting of private aquaculture. VMRC leases grounds for shellfish aquaculture such as oysters and clams. In addition, VMRC permits hybrid striped bass aquaculture farms. DGIF is responsible for permitting all other aquaculture farms. Species permitted by DGIF include, for example, catfish, trout, and tilapia.

The process to obtain a permit from either agency is generally the same. First, a person must submit an application to the appropriate agency. The facility is then inspected by VMRC and/or DGIF staff to ensure the system will not allow fish to escape. If the system is sound, then a permit is issued. Permitted aquaculture facilities for hybrid striped bass, catfish, and other fish species are located throughout the State.

It is typical for aquaculture farms to raise multiple species of fish. For example, a farm in Charles City raises catfish and hybrid striped bass. Because of the current division of aquaculture permitting responsibilities, private aquaculturists, such as the one in Charles City, must obtain their permits from two different agencies. Since the application process entails a site visit from the DGIF and VMRC fisheries staff, both agencies' staff are inspecting the same facilities. However, VMRC staff reported that they will not inspect a facility requesting a hybrid striped bass permit if the facility already has a permit from DGIF for raising tilapia, since the tilapia facility requirements are more stringent than those required by VMRC for hybrid striped bass.

This division of aquaculture permitting responsibilities between DGIF and VMRC results in duplication of effort and inconveniences to the private aquaculturists. Since DGIF is responsible for most fish aquaculture, and has aquaculture experts on staff to operate their own hatcheries, DGIF should assume responsibility from VMRC for permitting hybrid striped bass aquaculture farms.

***Recommendation (10).* DGIF should permit hybrid striped bass aquaculture farms along with all other fish aquaculture farms. VMRC should provide DGIF with any information necessary to assume this responsibility.**

Fisheries Management Responsibilities Are Inappropriately Fragmented

The evidence presented shows that the fisheries work of DGIF and VMRC is not identical, but is highly related and overlapping in some cases. Further, as dams are breached as part of the Fish Passageway program, this overlap in species responsibilities can be expected to increase. The need for the *Code* to identify the division of fisheries responsibilities by location along with species exceptions demonstrates the difficulty of dividing State fisheries responsibilities into two agencies. It has resulted in resource management problems as well as hampered service to various constituencies.

In other words, the current arrangement results in a fragmented approach to fisheries management in Virginia. The problems identified with regard to fisheries management would be alleviated if one State agency were responsible for all fisheries work. This issue will be addressed in Chapter V.

HABITAT MANAGEMENT

VMRC is responsible for managing two aspects of the habitat in which Virginia's aquatic and terrestrial species survive. First, VMRC is responsible for administering the joint permit application process and issuing submerged bottomland permits. VMRC is doing an adequate job as the State's clearinghouse for permits required for activities affecting Virginia's waters and submerged bottomlands. However, improvement is needed in the enforcement of submerged bottomland permit conditions.

Second, VMRC is responsible for managing the harvest of oysters and clams by leasing grounds to individual watermen and by marking and enforcing the boundaries on public oyster harvest areas. While private marine surveyors are also involved in some of the management activities for this function, this review has determined that this function should not be completely privatized.

Submerged Bottomland Permitting

There are 1.5 million acres of submerged bottomlands and 5,000 miles of tidal shoreline in Virginia. The *Code of Virginia* designates VMRC as the State agency responsible for permitting public and private activities that encroach these areas. Submerged bottomlands include, for example, the bottoms of streams and rivers. Activities that encroach these areas include pier construction, bulkhead and riprap emplacement, marina development, and pipeline installation.

In addition to VMRC having permitting authority over these areas, the Department of Environmental Quality issues Virginia Water Protection permits for projects that affect water quality, and the U.S. Army Corps of Engineers issues permits from the federal government for projects affecting navigable waterways. In some cases, an applicant will need permits from all three agencies prior to beginning a project.

Further, several State agencies are involved in providing analyses of the potential impact of these projects on wildlife, plants, and land for the permitting agencies. These agencies include the Department of Game and Inland Fisheries, the Department of Conservation and Recreation, the Virginia Institute of Marine Science, and the Department of Historic Resources.

This process has been streamlined to reduce confusion and duplication resulting from so many agencies being involved in the process. However, improvements are still needed in the enforcement of permit requirements.

The Submerged Bottomland Permit Application Process Has Been Streamlined. In the late 1970s, the agencies involved in the permitting process agreed to develop a joint permit application. The joint permit application enables applicants to complete only one application, regardless of which, or how many, permits they need for their project. VMRC serves as the clearinghouse for the applications, and therefore all applications are initially submitted to VMRC. VMRC staff decide which permits are required for the project, and which agencies should provide analysis of the potential impact of the project. VMRC then forwards copies of the application to the appropriate agencies. The VMRC board hears the agency comments, the VMRC environmental engineers' description of the project, the applicant's testimony, and any neighbor's or other concerned citizen's testimony, and then votes to determine whether a permit will be issued for the proposed project.

The State and federal agencies involved indicate that the application process is working well. They indicate that VMRC has done an appropriate job of serving as a

clearinghouse, and there have been no complaints from the public regarding the application process. In addition, JLARC staff contacted 12 individuals who had submitted a joint permit application in 1995. These individuals reported minimal problems with the process.

Better Enforcement of Environmental Permitting Is Needed. One problem area with environmental permitting, however, appears to be enforcement. VMRC, with staff concentrated in the Tidewater area, is responsible for permitting activities that encroach submerged bottomlands throughout Virginia. Within Tidewater, VMRC staff typically review project sites during the application process, and they inspect the project once it has begun to ensure that the applicant is following the conditions of the permit. VMRC staff indicate that it is impossible for them to perform these functions in areas west of Tidewater.

To account for this, in 1990 VMRC entered into a memorandum of agreement with DGIF. According to the agreement, VMRC is supposed to provide DGIF with copies of all permits issued west of Tidewater. In turn, DGIF agreed to enforce permit conditions. However, this agreement has been ineffective. VMRC does not provide copies of all permits issued for projects west of Tidewater to DGIF. As such, DGIF game wardens located west of Tidewater do not routinely inspect project sites.

The JLARC survey of game wardens asked the officers to indicate whether they are made aware of permits issued in their jurisdiction. Only three of the 64 game wardens stationed in Regions 2, 3, and 4 (which are west of Tidewater) who responded to this question indicated that they are made aware of permits issued in their jurisdiction.

Further, 14 of the 64 game wardens indicated they encountered at least one situation in the past year where an individual encroached a submerged bottomland without a permit. Forty-two reported that investigating submerged bottomland violations is not a part of their routine patrol. The remaining eight game wardens reported that they check for submerged bottomland violations, but they did not encounter any violations in the past year.

Several game wardens stationed west of the Tidewater area that reported encountering multiple violations over the past year were contacted to provide examples of the type of violations they are finding. For example:

A game warden in southwest Virginia reported that he encountered a situation in which a contractor was exploding dynamite to get through some rock. The explosions were occurring partly on land, and partly on the stream bed of a trout stream. The explosions caused the water in most parts of the stream to be too muddy to enable trout stocking, so DGIF had to stock the trout in the lower end of the stream, rather than throughout the stream. The contractor did not have a submerged bottomland permit. The contractor was required to cease his activity, and the situation was turned over to VMRC.

A DGIF fisheries biologist from southwest Virginia also indicated that he finds submerged bottomland permit violations quite often, and the impact of submerged bottomland violations can be significant. He said that if he were to look hard enough, he would find a violation in his region every time he looked. For example:

The fisheries biologist said that a common infraction involves individuals channeling a stream without obtaining a permit. Individuals do this because they think it will reduce flooding potential. The impact of this infraction is immediate. The increased sedimentation increases the water turbidity, and causes the water to move more quickly and may actually cause flooding downstream. This activity also affects the fish habitat. Aquatic vegetation is removed and the water temperature increases because trees are removed. The sediment washes downstream and deposits somewhere. If it deposits in a trout stream, it could kill the trout.

VMRC environmental engineers have indicated that, although they rarely visit areas west of Tidewater, they are aware that there are enforcement problems in the western part of the State. For example:

One VMRC environmental engineer said that VMRC has done a poor job of publicizing that a permit is required for activities that encroach submerged bottomlands in areas west of Tidewater. He believes his agency should advertise in newspapers and have more contact with local officials in the western part of the State to increase awareness that permits are required for these activities.

* * *

Another VMRC environmental engineer indicated that because the agency does not often have contact with officials in the western part of the State, it is hard to know how much activity is going unpermitted. However, he said he has heard that landowners bulldoze bottomlands to prevent flooding, without obtaining a permit.

Therefore, it appears that VMRC should take a more active role in publicizing permit requirements to localities west of Tidewater. Currently, ten percent of permit applications come from the western part of the State. This number would likely increase if permit requirements were enforced in these areas. In addition, VMRC and DGIF should abide by the requirements of the 1990 memorandum of agreement. DGIF should inform game wardens of projects that have been permitted in their localities, and DGIF should encourage game wardens to investigate submerged bottomland encroachments during their routine patrols to ensure that each project that encroaches the bottomlands has been permitted.

***Recommendation (11).* VMRC should increase the awareness of submerged bottomland permit requirements to individuals in the western part of**

the State. Through advertising and networking, VMRC should inform corporations, businesses and landowners about which activities require permits, and how to apply for permits.

***Recommendation (12).* VMRC should abide by the requirements of the 1990 memorandum of agreement with DGIF regarding the enforcement of submerged bottomland permits. Pursuant to the agreement, VMRC should provide copies of all the subaqueous bed permits it issues for activities in the inland portions of the Commonwealth to DGIF.**

***Recommendation (13).* DGIF should abide by the requirements of the 1990 memorandum of agreement with VMRC regarding the enforcement of submerged bottomland permits. Pursuant to the agreement, DGIF should provide the necessary coordination and law enforcement follow-up to help ensure compliance with VMRC permit conditions in inland areas apart from Tidewater.**

Oyster Ground Surveying

One of the responsibilities of VMRC's Habitat Management Division is to lease and manage State-owned oyster grounds. The oyster grounds must be surveyed so that the boundaries of each leasee's plat are clearly marked in the water. The function of surveying leased oyster grounds was identified as a possibility for privatization because there are private surveyors that are able to perform this function. However, this review has determined that this function should not be privatized because: (1) the VMRC survey teams are involved in more than just surveying the leased oyster grounds, (2) there are few private surveyors capable of conducting oyster ground surveys, and (3) the private surveyors would charge considerably more than VMRC to perform this function.

Leased Oyster Grounds Are Surveyed by VMRC Staff and by Private Surveyors. Privatization of leased oyster ground surveying was initially considered because of the current involvement of private surveyors in performing this function. When an individual wants to lease a portion of these grounds, or have the boundaries on their leased grounds re-staked, they must have a survey completed by either VMRC or a private surveyor. Currently, 7,000 leases have been issued for the 100,000 acres of public oyster grounds that are leased.

Although individuals have the option to use private surveyors to conduct the surveys, most leasees use VMRC for the initial survey of the grounds. In 1995, lease applicants used VMRC 43 times and private surveyors only four times for their initial survey. VMRC does not keep records on the number of surveys that are conducted to re-stake the boundaries.

VMRC Is Responsible for More Than Just Surveying the Leased Oyster Grounds. However, each of the VMRC surveyors are involved with more responsibilities than surveying the public oyster grounds that are leased. VMRC is also responsible for

managing all the leases and for enforcing the boundaries of the public oyster grounds that are leased to individuals. This involves mapping the leased areas, maintaining records of which grounds have been leased and which have not, and billing and collecting rental payments.

Further, these staff have additional responsibilities. They are responsible for managing the 245,000 acres of public oyster grounds — called Baylor grounds — that are not leased. These grounds are open to the public for oyster and clam harvesting. VMRC surveyors are responsible for surveying the Baylor grounds to ensure that the boundaries are clearly marked.

VMRC surveyors also have responsibility for maintaining the boundaries on 28,000 acres of marshes and meadowlands of the Eastern Shore that are State-owned. In addition, VMRC surveyors are responsible for marking the Maryland-Virginia state line boundaries on the Potomac River, the Chesapeake Bay, and the tributaries.

Few Private Oyster Surveyors Are Involved in Conducting Oyster Ground Surveys. Conducting marine surveys on the water is difficult because it requires stationary boundaries and special equipment to enable triangulation of the survey markers. Consequently, there are few surveying companies involved with marine surveys. The companies that perform this service are land surveying companies that also do some marine surveys.

JLARC staff identified five private surveyors with capabilities to conduct oyster ground surveys. Only one company, which was contracted by VMRC in the early 1980s to help them with a backlog, had the capability to conduct as many surveys as VMRC staff. The other companies were either not interested in performing this function, or only had the capability to do a few surveys each month.

Private Surveyors Would Charge Considerably More Than VMRC to Conduct the Surveys. The private surveyors contacted by JLARC staff reported they would charge considerably more to conduct the surveys than VMRC charges. The private surveyors reported to JLARC staff they would charge between \$500 and \$1,000 per survey. VMRC surveyors charge only enough to cover the amount of time they are doing the surveys. Their charge is \$470 per survey.

The Oyster Survey Function Should Not Be Privatized. It would not be beneficial to the State to privatize the surveying of leased oyster grounds. VMRC staff have considerably more responsibilities than surveying these grounds, and it therefore does not appear that there would be any staffing reductions possible if this function were privatized. In addition, the cost to the watermen would increase. Since there are few companies available to do this type of work, there would be little competition to keep the prices down. Further, VMRC has responsibility for maintaining the oyster ground lease records, and for enforcing the boundaries. Therefore, oyster ground surveying should remain as a State function.

IV. Law Enforcement

Item 15E of the 1995 Appropriation Act specifically requires JLARC to examine the feasibility of consolidating the law enforcement divisions of the Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resources Commission (VMRC). The divisions' management oppose such a consolidation. They believe that the current division of responsibilities works well because each division serves a different mission. The managers state that the DGIF law enforcement division's mission is to enforce recreational hunting and fishing laws. In contrast, they say the Virginia Marine Patrol's mission is to enforce the State's commercial fishing laws.

Pursuant to the study mandate, JLARC staff developed a series of analyses to assess whether the current division of responsibilities exhibits any overlap or problems. As part of this process, JLARC staff also surveyed the game wardens and marine patrol officers. The analyses and surveys were used to answer the following research questions:

- Is there overlap between the two law enforcement divisions?
- Are there existing problems in these divisions' operations?
- If problems exist in the divisions' operations, how could these concerns be addressed?

A consolidation would be of little benefit if overlap or problems did not exist in the current division of responsibilities. However, if significant areas of overlap or significant problems were found, then a consolidation of the two law enforcement divisions could benefit Virginia's citizens and natural resources.

The analyses performed for this review indicate that several areas of overlap do exist in the current division of responsibilities. Furthermore, the survey responses indicate that both groups of officers encounter significant problems in fulfilling their responsibilities. The problems found suggest that there would be significant benefits to consolidation of the respective law enforcement operations. Overall, of the game wardens and marine patrol officers responding to the survey, more game wardens and marine patrol officers than not believe a well-implemented consolidation of the agencies would improve, rather than weaken, law enforcement. This is particularly the case among marine patrol officer respondents.

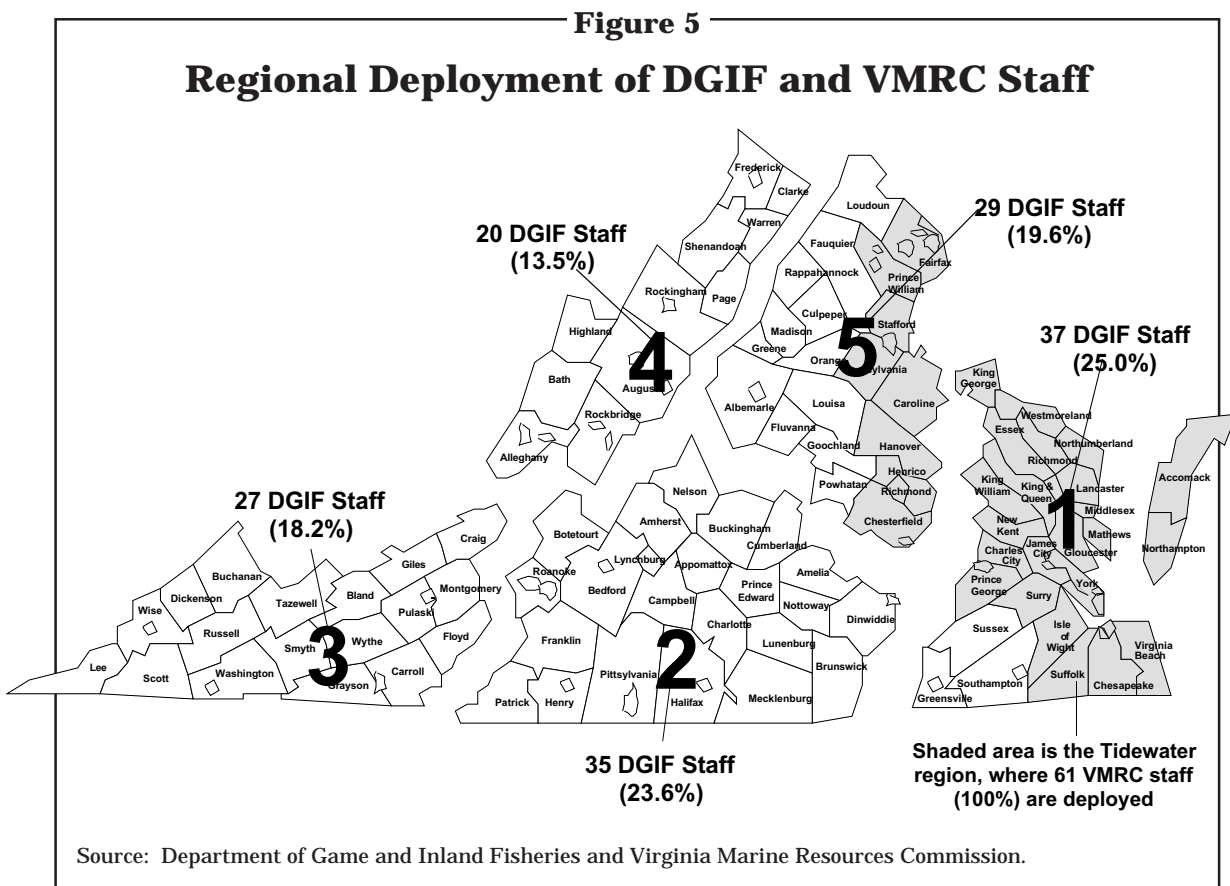
IS THERE OVERLAP BETWEEN THE RESPONSIBILITIES AND DUTIES OF DGIF AND VMRC LAW ENFORCEMENT OFFICERS?

A number of similarities exist between the responsibilities and duties of game wardens and marine patrol officers. For instance, a substantial group of DGIF officers

are stationed in Tidewater Virginia, where the VMRC officers are located. Both groups of officers enforce boating safety laws and regulations. Officers also enforce recreational fishing laws and regulations. In addition to their recreational boating and fishing responsibilities, game wardens and marine patrol officers also enforce submerged bottomlands permits and share full police powers. As a condition of full police powers, the two law enforcement divisions must receive the same basic law enforcement instruction. Given these many similarities, it is clear that some overlap exists between the two law enforcement divisions.

Game Wardens and Marine Patrol Officers Are Both Stationed in Tidewater Virginia

As shown in Figure 5, both divisions have officers stationed in Tidewater Virginia. Two of DGIF's five regions operate within the Tidewater area, as do all four of VMRC's regions. As a result, a number of DGIF officers patrol some of the same areas patrolled by VMRC officers. In total, 59 game wardens, or 37 percent of the entire game warden force, are stationed in Tidewater Virginia. In addition, other officers have reported performing duties in the Tidewater area. There are currently 61 marine patrol officers stationed throughout the Tidewater area.



Both Divisions' Officers Enforce Boating Safety Laws and Regulations

Game wardens and marine patrol officers are responsible for the enforcement of boating safety laws and regulations. The *Code of Virginia* specifically states in Section 29.1-745: "Every game warden, Marine Resources Commission inspector, and every other law enforcement officer of the Commonwealth and its subdivisions shall have the authority to enforce [boating safety laws]." Both divisions conduct regular boating safety operations on the State's waters, including boating safety inspections and search and rescue operations. Many of these activities are conducted on the same portions of State waterways in the Tidewater area.

JLARC staff interviewed local law enforcement officers, such as sheriffs, deputy sheriffs, police chiefs, and lieutenants, representing 31 Tidewater localities to determine the adequacy of DGIF and VMRC boating safety enforcement services. The local officers stated that they felt both DGIF and VMRC personnel were equipped to provide the services their agency would need. However, officers stated that they were more concerned about response time. Local officers with access to both DGIF and VMRC personnel said they would call both agencies to provide marine assistance. Whether the local officers would then work with game wardens or marine patrol officers would depend on which group of officers could first arrive on the scene.

Both Divisions' Officers Enforce Recreational Fishing Laws and Regulations

Game wardens and marine patrol officers are also responsible for the enforcement of recreational fishing laws and regulations. However, there are differences between the laws and regulations each group typically enforces. Game wardens are responsible for enforcing fishing laws and regulations on Virginia's inland waters, lakes, and ponds. These waters usually contain freshwater species of fish, such as trout. Marine patrol officers are responsible for enforcing saltwater fishing laws. Currently, marine patrol officers enforce recreational fishing regulations on 14 species of saltwater fish.

In most of Virginia, there is little question which agency's laws and regulations govern recreational fishing. Outside Tidewater Virginia, all rivers and streams are designated as inland, fresh waters. In the Chesapeake Bay and Atlantic Ocean, clearly saltwater recreational regulations are in force. However, within Tidewater Virginia, these two sets of regulations can sometimes overlap. For example, in certain waterways either a DGIF freshwater fishing license or a VMRC saltwater recreational fishing license may be used.

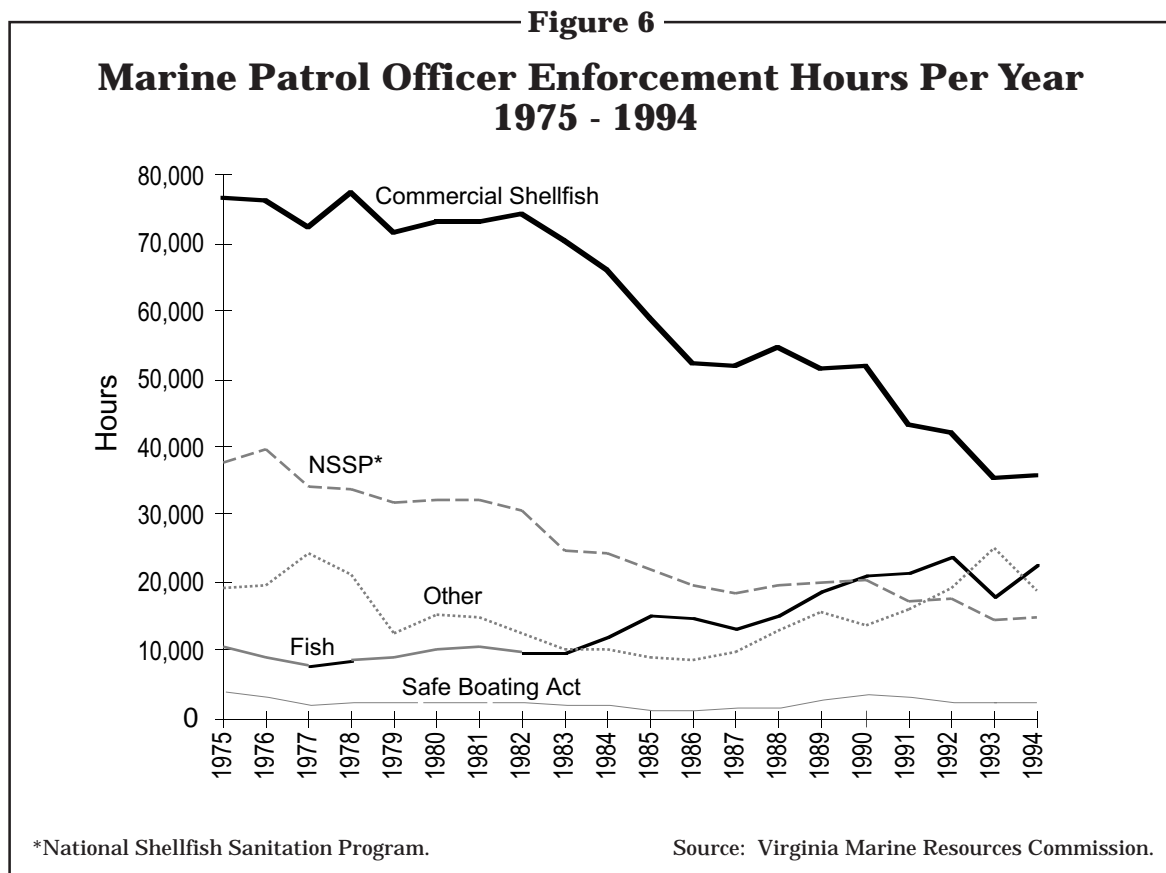
The Importance of Commercial Shellfish Enforcement Is Diminishing as Marine Patrol Officers Become More Focused on Recreational Fishing

Even though game wardens and marine patrol officers share responsibility for the enforcement of recreational boating and fishing laws, they do not share all respon-

sibilities. Marine patrol officers typically do not enforce hunting laws and regulations. Game wardens do not typically enforce commercial shellfishing laws and regulations. However, the importance of these different responsibilities may be waning. Time allocation data maintained by VMRC indicate that the number of hours officers spend on the enforcement of commercial shellfishing laws and regulations is declining (Figure 6).

The figure shows the number of enforcement hours recorded by marine patrol officers between 1975 and 1994 by type of enforcement. Between 1975 and 1994, the number of enforcement hours spent by marine patrol officers on commercial shellfishing fell by 53 percent. In contrast, the number of hours spent on fishing enforcement rose by 116 percent over this same period. Between 1975 and 1994, the number of enforcement hours related to the Safe Boating Act were fairly stable. More recently, the number of enforcement hours spent by marine patrol officers on commercial shellfish work declined by more than 24 percent between 1989 and 1994. The number of hours devoted to the enforcement of fishing regulations rose by more than 22 percent over this period.

VMRC management reported three factors explaining the increase in fish enforcement hours. The first factor is the long-term decline in Virginia's commercial shellfish industry. As the harvest of commercial shellfish has declined, fewer people have



continued working in the industry. Therefore, officers' time is available to enforce other laws and regulations.

A second factor reported by VMRC management is that the Commission has increased its coastal fisheries management efforts. VMRC manages fisheries stocks on an Atlantic coast basis in cooperation with interstate organizations such as the Atlantic States Marine Fisheries Commission. Agency managers state that these increased efforts have resulted in more fisheries management plans, finfish regulations, and enforcement.

The third factor which can explain the increase in fish enforcement hours from 1993 to 1994 (an increase that is apparently being maintained) is the State's recent implementation of a saltwater recreational fishing license. Since the license's initiation in 1993, the enforcement of recreational saltwater fishing laws and regulations has become an important area of work for marine patrol officers. Marine patrol officers responding in 1996 to the JLARC staff survey reported spending more than 43 percent of their time, on average, on recreational fishing law enforcement.

When combined with the declining importance of commercial shellfish enforcement, the increase in fishing enforcement, and specifically, the increase in recreational fishing enforcement, it appears that VMRC is placing a growing emphasis on recreational law enforcement. Furthermore, VMRC is the primary State agency enforcing the provisions of the Safe Boating Act on the Chesapeake Bay and Virginia's territorial seas. Recreational fishing and boating enforcement are areas which have traditionally been associated with DGIF law enforcement efforts.

Both Divisions' Officers Share General Law Enforcement Powers

In addition to sharing responsibility for the enforcement of recreational fishing and boating laws, game wardens and marine patrol officers also share full police powers. These officers are, therefore, capable of making arrests under any section of the *Code of Virginia*. In fact, each group of officers could be viewed as police officers specializing in the enforcement of natural resources laws and regulations.

Because these officers have full police powers, they are also under the same requirements as police officers. Therefore, each receives the same basic law enforcement training. Moreover, an analysis of the officers' job descriptions indicates that both groups perform many of the same tasks. Many of these tasks, such as the use of firearms and patrol vehicles, would appear to be characteristic of any law enforcement organization. In addition, both groups of officers enforce many of the same types of regulations.

Game Wardens and Marine Patrol Officers Have Been Granted Full Police Powers. Since 1989, both game wardens and marine patrol officers have been vested with the authority to enforce general laws. Therefore, each agency is also currently empowered to enforce each other's laws and regulations. Game wardens were

extended these powers by the General Assembly in 1981. Section 29.1-205 of the *Code of Virginia* states they have “the same authority as sheriffs and other law enforcement officers to enforce all the criminal laws of the Commonwealth.” A similar section of the *Code of Virginia* grants full police powers to marine patrol officers. That section, Section 28.2-106, states that marine patrol officers have the “same powers as regular game wardens.”

The extension of full police powers has significantly expanded these officers’ law enforcement authority. Prior to the General Assembly’s action, game wardens and marine patrol officers were restricted to the enforcement of laws and regulations which came under the purview of either DGIF or VMRC, respectively. As stated previously, the officers can now enforce any law or regulation. For instance, many officers assist localities in drug interdiction. However, despite the fact that the officers have the authority to enforce all criminal laws, many officers report that they are discouraged from enforcing laws and regulations outside those administered or established by their own agency.

Game Wardens and Marine Patrol Officers Undergo Similar Basic Instruction. DGIF and VMRC staff undergo basic training at the beginning of their careers, and receive ongoing training to update or enhance their skills. Issues have been raised by marine patrol officers about the adequacy of the ongoing training they have received, and that is discussed later in this chapter. However, a point relating to the similarity of the positions is that as a condition of having general law enforcement powers, game wardens and marine patrol officers must undergo the same basic law enforcement instruction and meet many of the same requirements.

The Department of Criminal Justice Services establishes minimum entry-level training standards for all law enforcement agencies in Virginia. These standards represent a collection of 435 performance objectives developed through the analysis of law enforcement jobs, and apply to all law enforcement recruits, regardless of whether they are employed by DGIF, VMRC, the Department of Corrections, or a local law enforcement agency. Every recruit must complete 315 hours of this basic law enforcement training, conducted by a certified private or regional law enforcement academy, as well as 60 hours of field training to be certified by DCJS as a law enforcement officer.

All DGIF game wardens are certified law enforcement officers and have, therefore, met the basic training requirements established by DCJS. DGIF recruits attend a 14-week training program (560 hours) which is conducted by the Central Virginia Criminal Justice Academy. In addition to their classroom instruction, the officers also receive 240 hours of instruction on agency operations as well as 12 to 15 weeks (480 to 600 hours) of field training. The recruits’ instruction in agency operations and field training is conducted by DGIF.

Marine patrol officers have only been subject to the requirement of DCJS certification since they were granted full police powers in 1989. The VMRC recruits receive 13 weeks of basic law enforcement instruction (520 hours) at the Rappahannock

Regional Criminal Justice Academy. In addition, new officers receive at least the required DCJS minimum field training hours. At most, new officers receive field training the entire time they are assigned as a mate on the Commonwealth's large patrol vehicles.

Officers Perform Similar Types of Duties. JLARC staff examined the job description of each type of DGIF and VMRC law enforcement position. The examination focused on each position's chief objective statement, the work tasks assigned to each position, the other organizations with which the position interacts, and the qualifications necessary for an individual to fill the position. Table 5 displays the positions which were compared and the sections of their job descriptions which contained similar information. Positions were identified as similar if a majority of enumerated items in a section were the same between the two groups of positions. Of the positions examined, only the assistant division chief position description appears to differ substantially between DGIF and VMRC. All other positions demonstrate a great deal of similarity in reported job responsibilities and qualifications. A detailed listing of the findings from this analysis is provided in Appendix B.

JLARC staff found additional support for the position descriptions analysis by accompanying game wardens and marine patrol officers on their patrols. These site visits demonstrated that both game wardens and marine patrol officers conduct similar types of law enforcement operations. Officers' patrols were dictated by the season in effect and the daily weather. The patrol methods used by the officers were dictated by problems specific to their assigned areas. Furthermore, both groups of officers relied upon their familiarity with their areas and the area's residents to distinguish between possible violators and people obeying the resource laws.

Table 5

Position Description Similarities				
Agency Position	Chief Objective	Work Tasks	Organizational Contacts	Qualifications
Division Chief vs. Division Chief	✓	✓	✓	✓
Assistant Division Chief vs. Assistant Division Chief			✓	
Game Warden Manager vs. Area Supervisor		✓	✓	✓
Game Warden Supervisor vs. Area Assistant Supervisor	✓		✓	✓
Game Warden Senior vs. Marine Patrol Officer B		✓	✓	✓
Game Warden vs. Marine Patrol Officer A		✓	✓	✓

Source: JLARC staff analysis of DGIF and VMRC position descriptions.

Similar Types of Regulations Are Enforced by Game Wardens and Marine Patrol Officers. JLARC staff also found that game wardens and marine patrol officers enforce many of the same types of regulations even if the specific purposes of those regulations differ. Despite whether a regulation's purpose is to govern the hunting of deer or the taking of crabs, the majority of each agency's regulations can be grouped into one of four categories. These categories are bag limits and quotas, size limits, equipment restrictions, and seasonal limits.

DO THE CURRENT OPERATIONS OF THE DGIF AND VMRC LAW ENFORCEMENT DIVISIONS INDICATE THAT PROBLEMS EXIST?

Having identified overlap between the two law enforcement divisions, the next research question to be answered is: Are there existing problems in these divisions' operations? JLARC staff found many problems with the current manner in which services are provided by these two agencies' law enforcement divisions. The most significant problem is the lack of communication between game wardens and marine patrol officers in the Tidewater area. Without routine communication between field officers, services provided by both agencies, such as boating safety enforcement and boating accident investigation, are more likely to be provided inefficiently. In addition, the lack of communication between the two agencies has contributed to an ineffective protection of Virginia's submerged bottomlands and other natural resources.

Further, game wardens and marine patrol officers patrolling the same stretches of Tidewater Virginia lack the training necessary to enforce each other's laws and regulations. This indicates that the officers' patrol time is not used as effectively as it could be. Better use of this time would provide better protection for Virginia's wildlife resources, both terrestrial and aquatic.

JLARC staff also found that many officers believe their divisions are understaffed. If these divisions are understaffed, that fact only underscores the importance of providing efficient and effective protection for Virginia's natural resources. Furthermore, many marine patrol officers reported they had received inadequate training from their agency. Therefore, it is likely that marine patrol officers are not protecting the State's natural resources as efficiently and effectively as they could with proper training.

Game Wardens and Marine Patrol Officers Do Not Communicate With Each Other Frequently

When the same or similar duties are being performed, communication becomes critical to avoiding duplication of effort and other inefficient practices. JLARC staff found, however, that game wardens and marine patrol officers stationed in the Tidewater area do not routinely contact each other. Many of the officers' responses to the survey referenced this problem. For example:

A game warden in Tidewater Virginia wrote that he has not seen much improvement in the communication between DGIF and VMRC over the years. He stated the only time game wardens hear from marine patrol officers is when they need surveillance assistance. Furthermore, he reported that the public also suffers from the lack of communication because field officers working for each agency do not know what their counterparts are doing or how to enforce the other agency's laws.

* * *

A marine patrol officer wrote that no game warden has ever sought his assistance, or made any effort to coordinate their activities. The marine patrol officer stated he often feels game wardens want nothing to do with marine patrol officers.

Other survey results confirm that communication between the officers is a problem. For instance, only 16 percent of game warden survey respondents stationed in the Tidewater Virginia area reported having coordinated any patrol actions with a marine patrol officer. In addition, only 40 percent of game warden survey respondents reported they had asked a VMRC officer for assistance. The marine patrol officers provided similar responses. Only 31 percent of the respondents reported having coordinated any patrol activities with the game wardens stationed in their areas. Furthermore, only 43 percent of the marine patrol officer respondents had called upon a game warden for assistance.

Boating Safety Enforcement Is Inefficient Due to Communication Problems. Boating safety is an area of enforcement in which better communication between game wardens and marine patrol officers could improve the level of service provided the general public. The two law enforcement divisions share responsibility for enforcing boating safety laws and regulations, and they conduct patrols for violations of these laws and regulations in many of the same portions of the State's waters.

However, because they do not routinely communicate with each other, DGIF and VMRC officers do not often know what the others are doing. The result of this communication problem is the inefficient use of the agency's resources, as illustrated in the following examples:

A local law enforcement officer reported that constituents in his area have complained to him about the boating safety inspections performed by DGIF and VMRC officers. The officer stated that the constituents are upset by having to undergo multiple boating safety inspections, conducted by both groups of officers, while on the same fishing trip. The local law enforcement officer suggested that the problem stems from the fact that the two State agencies are not communicating with each other well enough. He said that he does not believe that one group of officers knows where the other agency's officers will be performing boating safety inspections.

* * *

A marine patrol officer stated:

A coordination of enforcement effort should be attempted so that one knows what the other is doing, [and so] that areas along the rivers are not overlapped.

Boating Accident Investigation Is Hampered by Communication Problems. Another area in which better communication between game wardens and marine patrol officers is necessary is boating accident investigation. The *Code of Virginia* designates DGIF as the agency which will maintain the records of all boating accidents and boating accident investigations in Virginia. Furthermore, its officers have assumed the primary responsibility for conducting boating accident investigations. However, VMRC marine patrol officers are also involved in this activity, and the lack of communication between the two groups of officers has presented problems when they investigate an accident together. For example:

DGIF and VMRC officers working together failed to write a boating accident investigation report because each assumed the other agency's officers would take care of that responsibility. Several months later, the officers involved had to attempt to recollect the events and statements of those involved in the accident.

As the examples illustrate, better communication could prevent problems from occurring in areas of shared responsibility. First, better communication between the game wardens and marine patrol officers could allow one or the other group of officers to patrol another section of their area, thereby increasing the entire area inspected. Second, better communication between the officers could result in better coordination of the boating safety and boating accident investigation operations actually conducted. With better coordination, both groups of officers could have worked together without inspecting the same boats multiple times or failing to write required reports.

Communication Problems Lead to Ineffective Protection of Submerged Bottomlands. Communication problems do not only lead to inefficient law enforcement, but sometimes to ineffective law enforcement as well. As discussed in a previous chapter, both game wardens and marine patrol officers are responsible for the enforcement of VMRC submerged bottomlands permit conditions. However, examining the officers' survey results, JLARC staff found that 97 percent of game warden respondents stationed outside Tidewater Virginia and 66 percent of marine patrol officer respondents were not made aware of the submerged bottomlands permits that had been issued in their areas. Further, 62 percent of game warden respondents stationed outside Tidewater Virginia and 28 percent of marine patrol officer respondents stated that inspection of submerged bottomlands permits is not a part of their routine patrols.

This situation demonstrates a clear lack of communication. If the State's submerged bottomlands are to be protected by game wardens and marine patrol officers,

then VMRC and DGIF must communicate with the officers to inform them of the activities which will be undertaken in their areas and the terms under which those activities can be performed.

DGIF and VMRC Could Make More Effective Use of Their Officers' Patrols

JLARC staff have found that the DGIF and VMRC law enforcement divisions may not be making the most effective use of their officers' patrols. Many game wardens and marine patrol officers patrol the same areas. However, many officers report they must bypass possible violations of the other agency's laws and regulations due to a lack of training. The fact that officers must bypass possible violations of the other agency's laws and regulations would appear to be an ineffective use of the manpower available to protect Virginia's natural resources. For example:

A game warden in Tidewater Virginia stated that he often sees nets and crab pots in his area. However, he also said that he will not stop to inspect these nets or crab pots because he lacks training in this area and does not know the applicable law.

* * *

A marine patrol officer stated that, at times, he inspects duck hunters while on patrol. However, his inspections are limited because he does not know how to properly conduct them. He said that he has never received any training in this area. Instead, he must rely on the advice given him by area game wardens. Since he is on the water anyway, the officer said he might as well know how to properly inspect duck hunters.

* * *

Another marine patrol officer wrote that while on patrol he will at times run across areas which are typically the responsibility of DGIF. When this happens, the officer says he is often unsure how to proceed because he lacks any training in these areas.

Although each law enforcement division's arrests records indicate their officers make some arrests under the laws and regulations of the other agency, the number is small. Six percent of the FY 1995 arrests made by game wardens stationed in Tidewater Virginia were for violations of laws administered by VMRC. In contrast, 18 percent of these officers' arrests were for violations of general criminal codes.

VMRC arrests records indicate a slightly larger percentage of "cross-agency arrests" than recorded by DGIF. Ten percent of the FY 1995 arrests made by marine patrol officers were for violations of laws and regulations administered by DGIF. The majority of those arrests were for boating safety violations, an area in which VMRC officers have some formal responsibility.

Clearly, it is ineffective for game wardens and marine patrol officers to bypass possible violations while on patrol. This limits the protection given to Virginia's natural resources and necessitates that the two agencies conduct patrols along the same portions of their areas, thereby leading to further duplication of effort. At a minimum, game wardens and marine patrol officers stationed in the same areas should discuss the types of violations each routinely encounters while conducting a patrol. This discussion would familiarize each agency's officers with the most common violations encountered by their counterparts, and would provide each agency's officers with some idea of what is and what is not a violation of the other agency's laws and regulations governing an activity. Discussions of this type would better enable DGIF and VMRC officers to enforce more of Virginia's resource protection laws.

Understaffing Is a Concern of Game Wardens and Marine Patrol Officers

Many officers' survey responses suggest that the DGIF and VMRC law enforcement divisions are understaffed. While their workloads do not require the same time commitment year-round, staffing levels appear to be a problem during busy points in the year. The officers indicate that their divisions are busiest at different times of the year, meaning that there is currently an untapped potential to share work between divisions.

Specifically, when the officers were asked if their divisions had too few personnel to complete the assigned workload, 80 percent of the game warden respondents and nearly 80 percent of the marine patrol officer respondents agreed this was the case. The following indicate how many officers feel about this issue.

[We need] more field wardens, one per county just doesn't cut it.

* * *

VMRC is greatly understaffed for the amount of commercial and growing number of recreational fishermen within our area. Many areas go unchecked due to the shortage of marine patrol officers.

* * *

There is a great need for additional game wardens. We cannot continue to provide services to the public with fewer officers in the field than when I was hired. Boating safety is an important issue with the public and with the increase in the number of watercraft that are sold each year, we need to focus more officers around the inland waters of the Commonwealth to be able to address the enforcement issues that we face.

The potential to address the staffing level problem to at least some extent through cross-training officers, establishing better coordination between the two law enforcement divisions, and sharing of staff is indicated by the following officer comments.

A marine patrol officer stated that VMRC officers have a lot of “dead time” in November, December, January and February. Furthermore, he said that because many commercial fisheries are declining, many officers do “busy work” during the “dead time.” Instead of doing busy work, he said that marine patrol officers could be assisting DGIF during the hunting season.

* * *

Another marine patrol officer stated that he is in favor of greater coordination or consolidation because there are times when he could handle more work. Even if the two divisions were consolidated, he said that there would still need to be separate marine and game divisions, but with consolidation, officers could be shifted to help one another, “without egos getting in the way.”

Furthermore, he said that he wants to be a marine patrol officer and does not want to work in the mountains. But, he argued that it would be beneficial to the State to provide him with some cross-training so that if a need arose for more officers in the mountains he might be available to lend assistance. He stated that the work of VMRC and DGIF is not inherently different, but it is specific, and so cross-training is necessary. Whether the two divisions are consolidated or not, he reported that more cooperation is needed between the two agencies if the public is to be better served.

Better coordination between the two law enforcement divisions could alleviate workload pressures. Many of the officers are stationed in the same areas, they share general law enforcement powers, and conduct many of the same duties.

Marine Patrol Officers Lack Basic Law Enforcement Resources

According to their survey responses, marine patrol officers may not receive the ongoing training necessary to update and expand their skills. Furthermore, the survey responses also indicated that marine patrol officers receive far fewer ongoing training opportunities than game wardens. Many officers also felt that the training the agency did provide was not adequate.

The marine patrol officers' survey responses indicated that VMRC does not provide officers with adequate training in all areas. Specifically, the majority of VMRC respondents stated that the training they had received in search and rescue procedures, endangered species laws, and criminal investigation was inadequate. Furthermore, only slightly more than half of the respondents rated their training in general laws or boating accident investigation as adequate. Most marine patrol officers, however, did report they were satisfied with the training they had received in fishing laws, boating laws, and

species identification. Table 6 displays the response rates of marine patrol officers and game wardens to questions concerning the adequacy of training in these eight areas.

Comparing the survey responses provided by marine patrol officers with those of game wardens, on average, game wardens attended five training classes per year while marine patrol officers attended two training classes. Game wardens also indicated a higher level of satisfaction with their training than did VMRC officers. On average, 81 percent of game wardens expressed satisfaction with the training they had received in the eight areas of training. In contrast, the average level of satisfaction with VMRC training was 58 percent. Furthermore, in only one of the seven activities held in common, species identification, did the percentage of marine patrol officers responding they had received adequate training exceed the response of game wardens. In all other areas, with the exception of fishing laws, the favorable response of game wardens exceeds that provided by marine patrol officers by 15 or more percent.

Many game wardens stated they receive more training opportunities than marine patrol officers. Further, the game wardens stated this lack of training was a concern they had about working more or consolidating with VMRC. Examining both agencies' training expenditures for FY 1995, it appears that VMRC officers do receive more limited training than game wardens. Based on agency expenditures, the DGIF law enforcement division spent \$163,761 on officer training in FY 1995. In comparison, the VMRC law enforcement division spent \$895 in FY 1995. Therefore, on average, a game warden received \$1,024 of training in FY 1995. The average marine patrol officer, however, received only \$13 of training in FY 1995.

Table 6

Game Warden and Marine Patrol Officer Responses to Questions Concerning the Adequacy of Certain Training Areas				
Area of Training	Marine Patrol Officer Response Rate		Game Warden Response Rate	
	Adequate	Inadequate	Adequate	Inadequate
Search and Rescue	46.5%	53.5%	NA	NA
Hunting Laws	NA	NA	96.4%	3.6%
Fishing Laws	93.0	7.0	95.7	4.3
Boating Laws	81.4	18.6	97.1	2.9
Endangered Species Laws	28.6	71.4	55.7	44.3
General Laws	54.8	45.2	76.3	23.7
Criminal Investigation	26.8	73.2	82.0	18.0
Boating Accident Investigations	52.4	47.6	90.0	10.0
Species Identification	78.6	21.4	54.3	45.7

Source: JLARC staff surveys of game wardens and marine patrol officers, summer 1996.

The survey responses provided by both agencies' officers further support the idea that game wardens receive more training than marine patrol officers. Seventy-four percent of game wardens reported that their division does a good job of informing them about training opportunities, and 81 percent of the officers thought the division encouraged them to seek out new sources of training. Marine patrol officers, however, do not believe that their division properly informs them of training opportunities or that it encourages them to seek out new sources of training. Fifty-seven percent of the marine patrol officers stated that VMRC did a poor job of informing them about training opportunities. And, 67 percent of the officers believed that VMRC did not encourage them to seek out new training opportunities.

Many of the Virginia Marine Patrol's officers, however, have indicated that they want additional training. For example:

As far as training goes, the officer in the field is not offered the opportunity to go to any schools and is not allowed to contact the criminal justice academies. Some officers have approached management about available funds for taking night classes at local colleges and were told the funds were not available. When questioned about training, we are told we do not have the time. When promotions come available, they hire from the outside or newly hired officers because they have a lot of schools that the officers (who have been in the field a long time) don't have and cannot get.

* * *

VMRC needs to maintain at a minimum the training standards of other State law enforcement agencies.

* * *

I've worked with the ABC, State Troopers, DGIF, local law enforcement groups and other agencies and have learned from them all. VMRC has always been the follower. We need a lot more training and work experience with other agencies so that we can all learn and grow together.

It is clear from the survey responses provided by marine patrol officers that the level of training currently provided by the VMRC law enforcement division is problematic. To ensure effective law enforcement on the Commonwealth's waters, VMRC needs to address this issue.

HOW COULD THESE PROBLEMS BE BEST ADDRESSED?

As demonstrated in the previous section, problems exist in the current working relationship between the DGIF and VMRC law enforcement divisions. Therefore, the

next question is: How can these problems best be addressed? JLARC staff have identified two general approaches to alleviate the problems currently facing these divisions' operations: (1) game wardens and marine patrol officers could be consolidated within one agency; or (2) more limited alternatives could be used to address specific problems.

Officer Views on Consolidation

Although there are still some differences between the responsibilities of game wardens and marine patrol officers, over time their roles are becoming increasingly similar as the agencies take on new and increasing responsibilities. In particular, marine patrol officers are becoming more involved in law enforcement pertaining to recreational fishing and boating, which in the past was the traditional purview of game wardens. Also, they now both have general police powers. The increasing similarity between the officers calls into question the efficiency of the current organizational structure, particularly in the Tidewater area where the responsibilities of game wardens and marine patrol officers overlap.

As part of the survey of all DGIF and VMRC law enforcement officers, game wardens and marine patrol officers were questioned about their views on a possible consolidation of their law enforcement functions. Officers were asked to what extent they agreed or disagreed with a series of questions concerning a consolidation. Figure 7 contains the officers' responses to those questions. Among marine patrol officers, support for a well-implemented consolidation was very strong. Among game wardens in the Tidewater region, reactions were more mixed as an equal number of responding officers both agreed and disagreed with the statement that a consolidation would result in substantial law enforcement improvements. Outside Tidewater Virginia, more game wardens than not responded that a consolidation would result in substantial law enforcement improvements.

Specifically, over two-thirds of the marine patrol officers who responded to the survey reported that a well-implemented consolidation would likely result in substantial law enforcement improvements, including improved working conditions, better coordination of law enforcement activities on the State's waters, and better use of equipment. For example, one marine patrol officer wrote:

If consolidation is not made, VMRC will continue its present trend of poor law enforcement.... The only answer is total consolidation with DGIF.

The responses of game wardens, however, were mixed, with a slight plurality statewide indicating that a well-implemented consolidation would likely result in substantial law enforcement improvements. In particular, their views varied depending on whether or not they were located within or near the Tidewater area. As shown in Figure 7, game wardens stationed in Tidewater Virginia were equally as likely to believe that a consolidation could be useful to their division's operations as not. Game wardens stationed outside Tidewater Virginia were more likely to believe a consolidation could be

useful to their division’s operations than not. Exhibit 2 includes officers’ comments on both sides of the issue concerning consolidation.

Exhibit 2

**Game Warden and Marine Patrol Officer Responses:
Opinions on Consolidation**

Arguments Favoring Consolidation	Arguments Against Consolidation
<p>“If the two agencies combined a more uniform ‘marine patrol’ could be developed providing positions were not cut.”</p> <p>“I think that VMRC should be consolidated with DGIF [because] they do boat work and law enforcement in the same areas as we do and [they do] much the same job.”</p> <p>“I routinely cross paths with their officers in the spring and summer months and I feel a merger could eliminate duplication of some efforts....”</p> <p>“I have always felt that the agencies have a very similar role as conservation officer. By combining the two into a Department of Natural Resource, I feel that the whole Commonwealth will benefit. We have specialized expertise in areas of boating, search and rescue, where DGIF has expertise in boating accident investigation and criminal investigation.”</p> <p>“...[R]ight now, the majority of the public gets both agencies confused. Why are they paying two State agencies to have boats and patrol the same waters without the other’s knowledge?”</p>	<p>“The VMRC law division is far less progressive and future-minded than DGIF’s law division. VMRC also has far less training.”</p> <p>“Consolidation would result in a magnification of the user conflict issues which currently challenge both agencies from time to time, the conflict between commercial use of wildlife resources and recreational uses.”</p> <p>“VMRC is specialized in enforcement of saltwater regulations. We are not. We enforce mostly freshwater regulations. We enforce lots of hunting regulations, they enforce only a few migratory duck laws. I don’t see where our duties overlap.”</p> <p>[Problems if a consolidation were made would include:]</p> <ol style="list-style-type: none"> 1. Public confusion about who and where to call. 2. Cross-training necessary to bring officers up to speed on unfamiliar laws. 3. Poor image/working relationship with other agency would cause in-fighting, lower morale.... 4. May increase marine enforcement effort but be detrimental to game and inland fisheries efforts.” <p>“Law enforcement responsibilities would be too generalized to be effective. Both boards deal with different and wide-ranging problems. DGIF is statewide, and VMRC is tidal-water oriented. VMRC is geared more toward commercial fisheries.”</p>

Source: JLARC staff surveys of game wardens and marine patrol officers, summer 1996.

Potential Impact of Consolidation on Identified Problems

For many of the reasons stated previously in this chapter, consolidation could provide a number of benefits to the DGIF and VMRC law enforcement divisions. Consolidation could solve many of the divisions' communication problems, strengthen each agency's enforcement of submerged bottomlands, increase the number of cross-agency arrests, better coordinate the workloads of game wardens and marine patrol officers, and provide additional training opportunities for marine patrol officers.

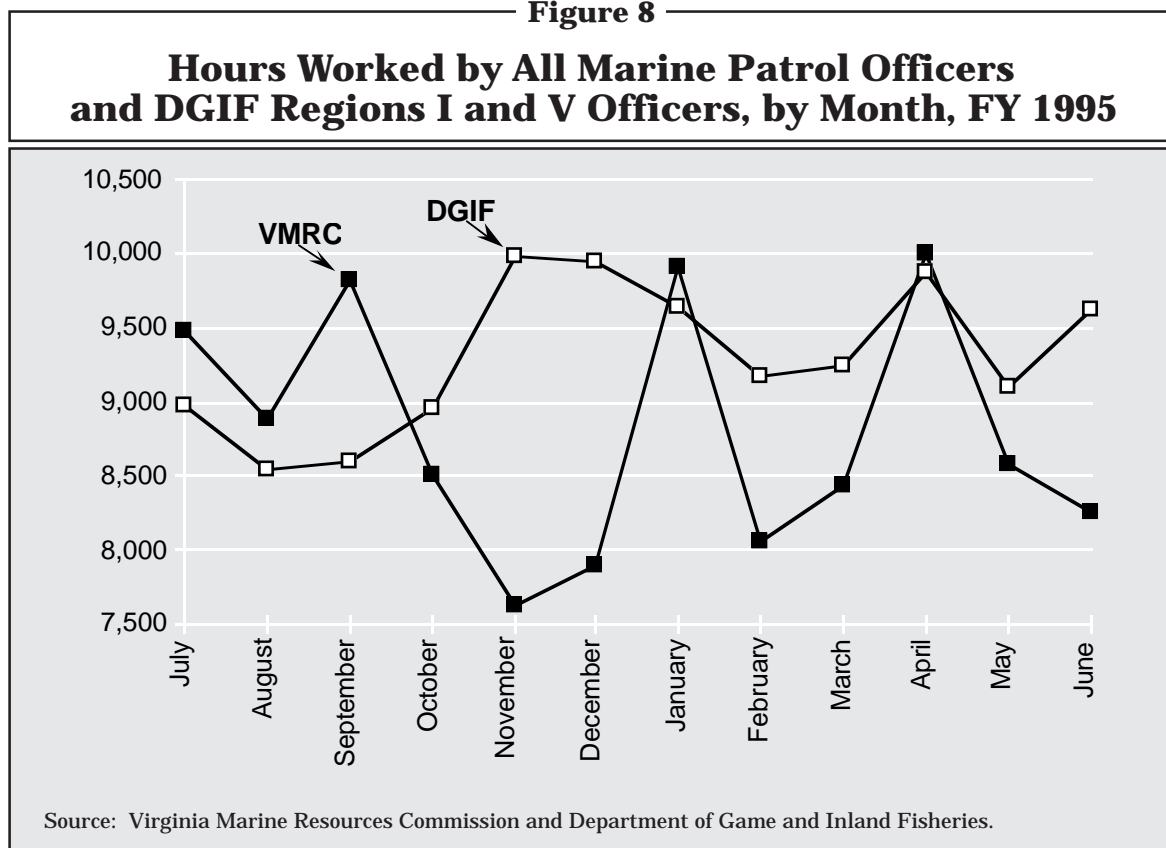
Addressing Communication Problems Through Consolidation. Better communication would appear to be an obvious benefit of consolidation. For instance, in a consolidated agency officers would report to and take direction from the same individuals. These same individuals would also coordinate work schedules and operations. In addition, agency time sheets, procedures, and radio equipment would be standardized. All of these factors could assist in the establishment of better communication between game wardens and marine patrol officers.

Addressing Gaps in Service Through Consolidation. Consolidation could also improve ineffective or inefficient law enforcement operations. For example, officers would not bypass possible violations of the other agency's laws and regulations, because these laws and regulations would be part of the consolidated agency's enforcement responsibilities. Officers would, therefore, be trained in these various laws and regulations, and would be expected to enforce them.

Addressing Staffing Issues Through Consolidation. A consolidated agency could also better coordinate the workloads of its officers so that assistance could be rendered in different areas at needed times. As shown in Figure 8, JLARC staff found that the workloads of the two law enforcement divisions' employees peak at different times of the year. The reason each group's peak hours differ from their counterparts' is that each is responsible for different types of enforcement at certain times of the year. For example, the period between October and January of FY 1995 clearly indicates that game warden hours exceeded those recorded by marine patrol officers. Between October and January nearly every hunting season is in effect. The enforcement of hunting laws and regulations is one of the primary responsibilities of game wardens during this time.

In contrast, marine patrol officers do not face as many of their primary responsibilities in this period. For example, two of the responsibilities of marine patrol officers are the enforcement of recreational boating and recreational saltwater fishing laws. However, between October and January, recreational boaters and fishermen are not as active. Moreover, in these months some of the agencies' commercial fishing seasons may not be fully in operation. Therefore, marine patrol officers are not as busy in this period as they are at the beginning of the summer months.

As mentioned previously, a single agency could coordinate the officers' workload better by assigning them to enforce laws in season. In addition, the officers' work schedules and duties would be assigned by the same supervisors in a single agency. Therefore, officers could be reassigned to assist other officers as the need arises.



Moreover, officers would more likely be prepared to enforce other laws and regulations outside their traditional areas of jurisdiction, because all recreational and commercial wildlife laws and regulations would be under the purview of the consolidated agency. Finally, the relationship between officers working in one agency is typically stronger than that between officers employed by two different agencies. Interpersonal relationships could play a large role in the willingness of officers to assist others with more demanding workloads.

Addressing the Marine Patrol Officers' Training Problems Through Consolidation. Consolidation could provide marine patrol officers with more opportunity for training. VMRC law enforcement management has stated that officer training is complicated by the need to place as many officers in the field as possible. A consolidated agency, however, would have more officers prepared to enforce more law enforcement areas. Therefore, more marine patrol officers would be able to attend the training they need to update and enhance their skills because other officers would be able to provide the law enforcement coverage which would otherwise be lost.

A More Limited Alternative: Implementation of Specific Improvements

Consolidation is not the only solution to the problems previously discussed. A more limited approach to these problems could be employed, especially in the Tidewater

Virginia area where most of the overlap and problems have occurred. However, many of the specific improvements would rely upon an increased level of communication between the officers that current evidence suggests may be unrealistic to expect under the existing arrangement. Furthermore, each improvement addresses only a single problem that was identified rather than offering a “big-picture” solution.

The first improvement addresses the issue of duplicative patrols and other services along the same portions of rivers and bays. This improvement would require that in areas of shared responsibility, game wardens and marine patrol officers be notified of planned activities to be taken by the other agency’s personnel. Under this improvement, the responsibility for this coordination would be placed with area work leaders and regional captains.

The second improvement is to address the involvement of marine patrol officers in boating accident investigation. Survey responses indicate that officers may not receive the amount of training necessary to do the job. VMRC should provide more training in this area for marine patrol officers. In addition, changes may need to be made to the *Code of Virginia* if marine patrol officers are to fully participate in this type of enforcement activity.

The third improvement addresses the officers’ need for a better understanding of each other’s laws and regulations. If game wardens and marine patrol officers are to fully enforce the natural resources laws and regulations while on patrol, then DGIF and VMRC must engage in some form of cross-training. Cross-training will provide the knowledge necessary for officers to make arrests in enforcement areas traditionally the jurisdiction of the other agency. At a minimum, the DGIF and VMRC law enforcement divisions should cross-train the officers they have stationed in the Tidewater Virginia area. The need for cross-training is greatest in this region because Tidewater Virginia is where the overlap and problems between these agencies occur. Furthermore, the two divisions should better coordinate their work schedules in this region so that both groups of officers might provide each other with assistance during their peak service delivery periods. The end result of such cross-training will be better protection for the State’s natural resources.

Implementation of these limited alternatives would result in increased costs to DGIF and VMRC. Specifically, each would incur the additional costs of cross-training their officers, and VMRC would incur the additional costs of improving their current training practices.

Although these improvements have the potential to address some of the individual problems observed, the evidence suggests that consolidation of the law enforcement functions in DGIF and VMRC may in fact be the more appropriate option. Although the need for law enforcement appears to warrant the officer employment levels in both agencies, a consolidated force would allow for more efficient and effective coverage of the Tidewater area. However, if consolidation is to be recommended, it must be done on the basis of all components of these agencies.

V. Feasibility of Consolidating Wildlife Resource Functions

This review has shown that there are opportunities to achieve some benefits through a consolidation of the Virginia Marine Resources Commission (VMRC), the Department of Game and Inland Fisheries (DGIF), the Department of Conservation and Recreation (DCR) Natural Heritage program, and the Virginia Department of Agriculture and Consumer Services threatened and endangered plant and insect program into a new Department of Wildlife Resources. While there are some important differences between DGIF and VMRC, there are also important areas of overlap. Further, there are a number of problems confronted by the agencies that might be addressed through a consolidation. Thus, the idea of a consolidation merits serious consideration.

However, an assessment of the feasibility of consolidation and the likelihood of its success must also include an examination of additional factors. First, there is the question of whether a consolidation is compatible with the emerging trends for the agencies and whether consolidation would better position the State to deal with the prominent issues of the future. For example, DGIF has indicated that its vision for the future is to be an agency with a commitment to all wildlife, not just game wildlife. Second, there is a need to recognize the obstacles or concerns that may exist, at least in the short-term, to achieving a consolidation. The arguments for a consolidation need to be juxtaposed against the concerns that exist, in order to draw some final conclusions about the feasibility of consolidation.

TRENDS IN AGENCY INTERESTS AND ACTIVITIES

This review has indicated a number of areas where the responsibilities of DGIF and VMRC overlap. One explanation for this overlap is that the primary constituents for which the agencies were created — commercial fishermen for VMRC, and hunters for DGIF — have been declining. At the same time, constituencies that the agencies have traditionally shared — recreational anglers and boaters — have been increasing. A number of problems have resulted from this overlap, such as duplication of services and missed opportunities for improved service delivery, because the agencies have not cooperated adequately in these areas.

In addition, this review has found that the nature of much of the work conducted by DGIF and VMRC is similar. Even where the responsibilities of the agencies are clearly divided, such as hunting and commercial seafood enforcement, the type of work performed by the staff to manage and enforce the resource is similar.

Trends indicate that this overlap will continue to expand. Therefore, it is likely that the percentage of time DGIF and VMRC staff spend on activities that overlap with the other agency will increase.

DGIF and VMRC Have Some Overlapping Responsibilities

This review has found that many of the responsibilities and tasks of DGIF and VMRC with regard to law enforcement, fisheries management, and habitat management are highly related. For example, each agency has responsibility for specific tasks that cross into each other's geographic jurisdiction. DGIF has responsibility for boat registration and boat ramp maintenance throughout Virginia, including the Tidewater area, and for permitting marine events such as boat races. VMRC has responsibility for permitting projects encroaching submerged bottomlands throughout Virginia. The agencies also share many of the same constituents.

Further, a number of similarities in the nature of the work conducted by DGIF and VMRC have been identified. For instance, both agencies employ some similar methods by which to manage fish and their habitat: monitoring harvest information and assessing the health of the population. DGIF and VMRC also develop similar types of regulations to protect the resources, including bag limits and quotas, size limits, equipment restrictions, and seasonal limits.

In some areas, such as responsibility for American shad, the agencies have worked out an effective cooperative agreement. However, in areas such as aquaculture permitting, certain fisheries regulations, hunting and fishing enforcement, boating enforcement, and submerged bottomland enforcement, there are examples of duplication, gaps in services, and/or missed opportunities for improved service delivery.

Overlap in Law Enforcement Responsibilities. There are some differences in each agency's law enforcement responsibilities: DGIF is responsible for hunting enforcement, and VMRC is responsible for commercial fishing enforcement. However, the differences between the two agencies' officers are becoming less pronounced as the agencies take on new and increasing responsibilities. For instance, both agencies are significantly involved in recreational fishing and boating safety enforcement. They also share responsibilities for submerged bottomland enforcement and general law enforcement. In addition, this review has found that the duties performed by the officers to achieve their responsibilities are essentially the same.

Despite these similarities, game wardens and marine patrol officers in Tidewater do not adequately communicate or coordinate their work. As a result, there is duplication of enforcement activities, and missed opportunities to prevent infractions of the other agency's regulations in the Tidewater area. These inefficiencies are pronounced due to the fact that many law enforcement officers from both agencies reported being understaffed.

Overlap in Fisheries Management Responsibilities. As discussed in Chapter III, the two agencies responsible for managing the Commonwealth's aquatic resources — DGIF and VMRC — share a number of related fisheries responsibilities resulting in a fragmented approach to fisheries management. Both agencies are charged with managing Virginia's fisheries in order to provide maximum benefit and long-term use of the resource for the State's citizens. More specifically, they both manage

recreational fisheries, compile data on fisheries, develop fisheries regulations, comment on bottomlands activities, conduct citation programs for recreational anglers, and permit aquaculture. The two agencies also have overlapping constituencies.

Currently, the provision of services for these overlapping activities is not as well coordinated between the two agencies as it could be. Confusion exists regarding the administration of some of these activities, particularly regarding the responsibilities for certain bodies of water, threatened and endangered marine organisms, and aquaculture permitting.

Overlap in Habitat Management Responsibilities. The *Code of Virginia* designates VMRC as the State agency responsible for permitting public and private activities that encroach the 1.5 million acres of submerged bottomlands and 5,000 miles of tidal shoreline in Virginia. Since there are many acres of submerged bottomlands west of the Tidewater area, where VMRC has no staff, VMRC has a formal agreement with DGIF for the department to enforce submerged bottomland permit requirements west of Tidewater.

However, this agreement has been ineffective. VMRC has not provided DGIF with copies of all permits issued, and DGIF game wardens do not routinely inspect project sites. Several DGIF game wardens and fisheries biologists and VMRC environmental engineers reported that there are permit violations occurring in these areas, and that the effect of these violations on Virginia's wildlife is significant.

Trends Suggest That Overlapping Responsibilities Will Increase

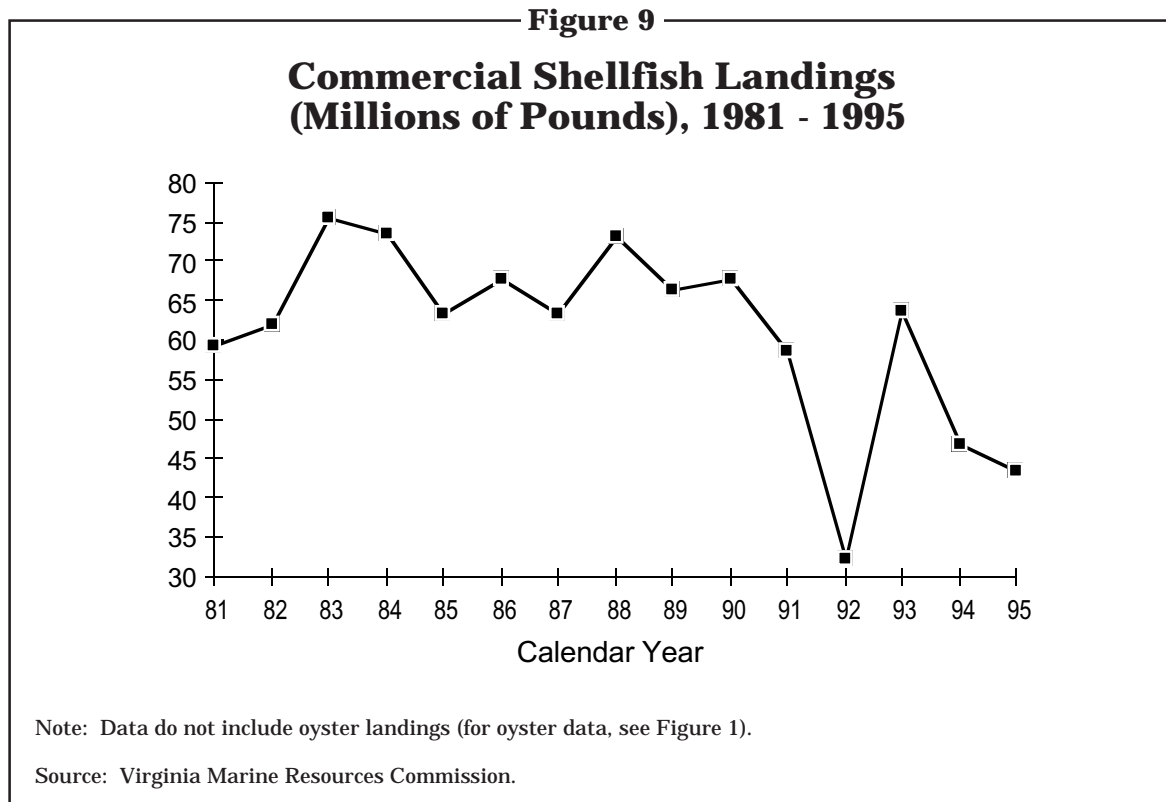
A number of trends in Virginia provide an explanation as to why DGIF and VMRC responsibilities have become increasingly similar. These trends also suggest that the agencies will continue to become more similar. These trends include:

- the decline of the commercial seafood industry;
- the increase in recreational boat registrations and boating accidents;
- the increase in freshwater and saltwater recreational fishing license sales; and
- the decrease in hunting license sales.

An effect of these trends is that VMRC's law enforcement officers are spending increased time on recreational fishing and boating enforcement, tasks traditionally performed by game wardens.

The Commercial Seafood Industry Has Declined. The number of commercial seafood resources and fishermen have significantly declined in recent years. For example, the number of oyster landings has decreased from 1.2 million bushels in FY

1981 to 16,891 in FY 1996. The number of commercial shellfish pounds landed (not including oysters) also decreased, from 59.3 million in 1981 to 43.5 million in 1995 (Figure 9). Accordingly, the number of commercial license sales has decreased from 17,077 in 1981 to 10,821 in 1995. (Some licenses have been reclassified in recent years from commercial to recreational, accounting for 2,274 licenses in 1995.)



The Number of Boat Registrations and Boating Accidents is Increasing.

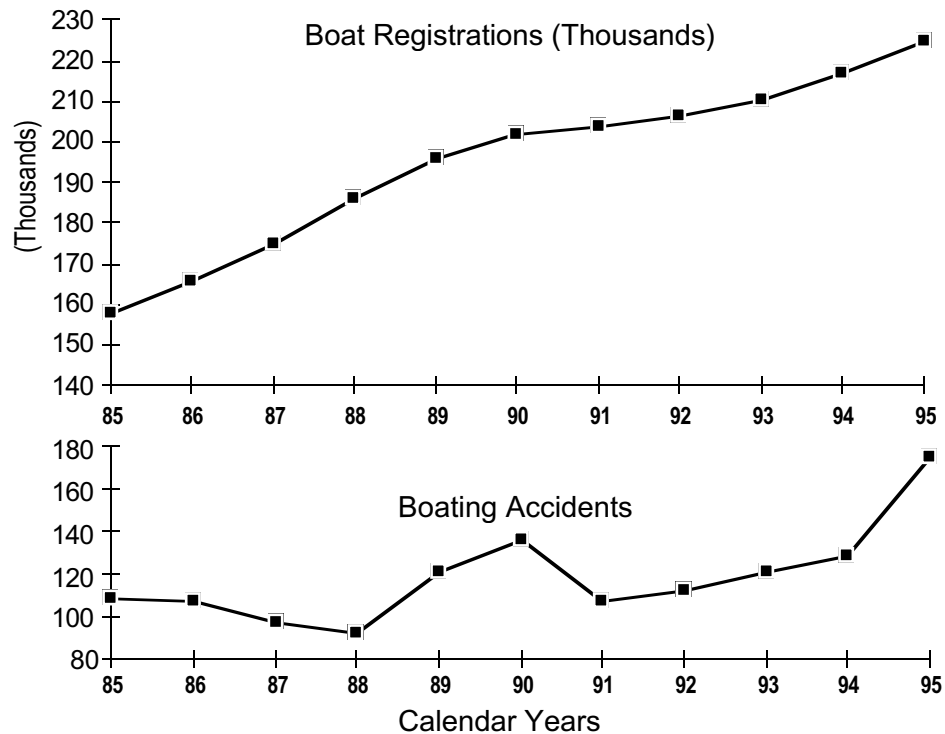
The number of registered boats has increased from 157,705 in 1985 to 224,795 in 1995 (Figure 10). In 1995, 61 percent of the boats were registered to Tidewater residents. The number of boating accidents has also increased. The number of accidents overall has increased from 109 in 1985 to 175 in 1995. The number of accidents in the Tidewater region has increased from 61 in 1985 to 101 in 1995.

The Number of Saltwater and Freshwater Recreational Fishing Licenses Is Increasing. Prior to 1993, there was no license required for recreational saltwater fishing. When the license requirement was enacted in 1993, 104,874 licenses were purchased. This number increased to 110,056 in 1995.

The number of freshwater recreational fishing licenses has also slightly increased. DGIF data indicate that fishing license sales have increased from 429,659 in 1986 to 440,413 in 1995 (Figure 11, page 80).

Figure 10

Actively Registered Boats in Virginia and Boating Accidents, 1985 - 1995

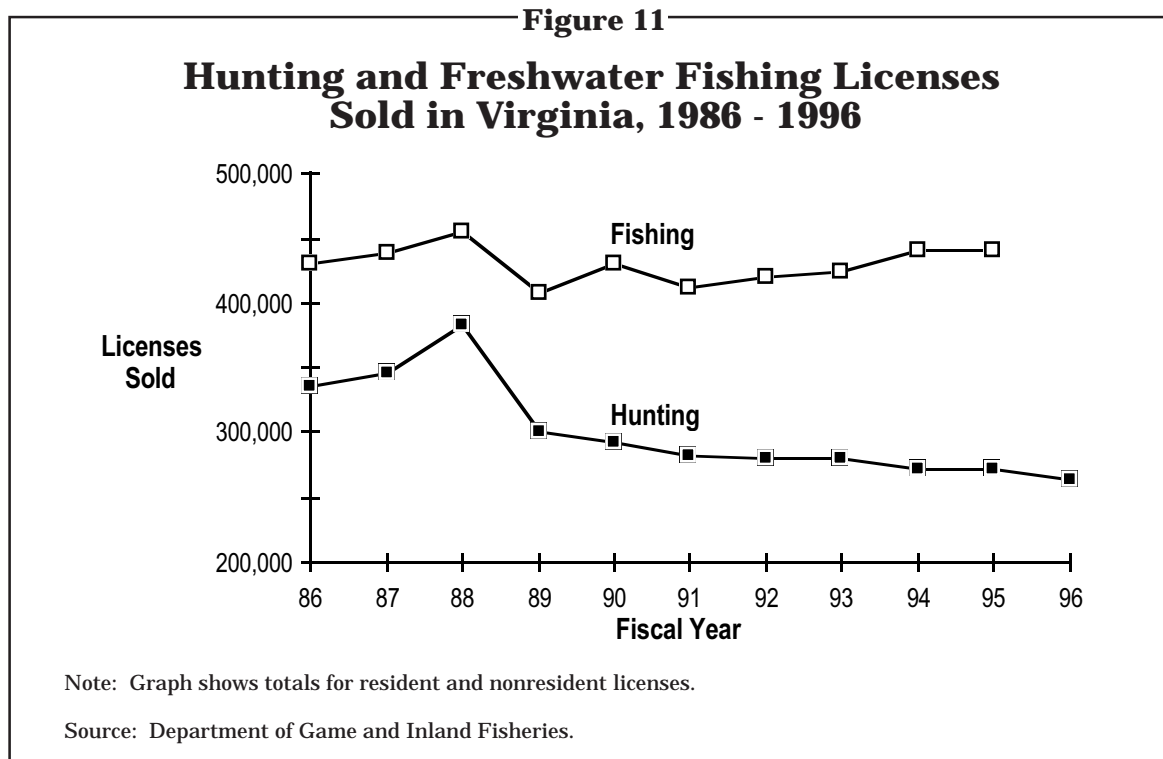


Note: Graphs are drawn on different scales in order to clarify trends.

Source: Department of Game and Inland Fisheries.

The Number of Hunting Licenses Sold Is Decreasing. One of the primary responsibilities of DGIF is to manage game wildlife. Although the number of freshwater fishing licenses has increased somewhat, the number of hunting licenses has decreased. DGIF data indicates that the number of hunting licenses sold has decreased from 335,202 in 1986 to 263,788 in 1996.

VMRC Enforcement Responsibilities Are Changing in Response to These Trends. The responsibilities of VMRC law enforcement officers are changing in response to these trends. As indicated in Chapter IV, marine patrol officer commercial shellfish enforcement hours have decreased from 76,706 in 1985 to 35,745 in 1994. The current VMRC law enforcement division head indicated that due to the decline in commercial fishing, boating and recreational fishing enforcement performed by his staff is being given greater emphasis. Accordingly, marine patrol officers indicated on the JLARC survey that they currently spend, on average, 43 percent of their time enforcing recreational fishing.



On the other hand, DGIF game wardens have not altered their enforcement responsibilities in response to the trends discussed above. Over the last five years, the officers' percent of time spent on hunting, fishing, and boating enforcement has remained constant.

BENEFITS TO CONSOLIDATION

Given the amount of overlap between DGIF and VMRC, the problems resulting from this overlap, and the trends that suggest the amount of overlap will increase, it is clear that at a minimum, better coordination between the agencies is needed. However, better coordination may not be enough. The agencies' management have not recognized the amount of overlap between the agencies and the similarities in the nature of their work. Consequently, they have only developed three memoranda of agreement, and one of them — for submerged bottomland protection — has not been adequately carried out. Further, this report has identified a number of services that would be better provided by a single agency, such as deployment of law enforcement officers and fisheries regulation development and permitting. Therefore, consolidation of these agencies needs to be considered.

Specifically, consolidating these agencies would result in a number of improvements:

- There would be better deployment and coordination of law enforcement officers in the Tidewater area, and therefore enhanced public safety and improved protection of Virginia's natural resources in this area.
- There would be decreased duplication of services provided to the public with regard to aquaculture permitting and more coordinated research on certain fish species.
- There would be less public confusion over which agency to contact regarding fisheries and law enforcement issues.
- There would be improved protection of submerged bottomlands west of Tidewater.
- There would be more equitable use of watercraft sales tax revenues by the agencies involved with boating safety.

In addition, consolidating these agencies into a Department of Wildlife Resources, along with DCR's Natural Heritage Division and VDACS' endangered plant and insect program, would enable all of Virginia's wildlife to be managed by a single agency. This would conform Virginia's wildlife management with the current focus on managing wildlife from a holistic perspective. This type of management acknowledges that wildlife are related and interact with each other within an ecosystem. Consequently, management techniques that affect one species will inevitably affect many others. Accordingly, 14 of the other 18 coastal states have marine and inland wildlife management housed within a single agency.

Consolidating DGIF and VMRC Would Enable Law Enforcement Officers to Better Protect Virginia's Wildlife Resources and the Public

This review has found that consolidating VMRC and DGIF would improve protection of Virginia's wildlife resources and the public by enabling better deployment of the officers, facilitating cross-training, and helping to address the marine patrol officers' training problems. More DGIF and VMRC law enforcement officers support a consolidation of the agencies if it is well implemented than oppose it. Results from the JLARC survey indicate that a plurality of game wardens, and 69 percent of marine patrol officers believe that a well-implemented consolidation would likely result in some substantial law enforcement improvements.

A consolidated agency would better be able to coordinate the workloads of its officers so that assistance could be rendered in different areas as the need arises. Game wardens and marine patrol officers have down times during the other agency's busiest season. Better deployment of officers would improve the enforcement capabilities of these reportedly understaffed forces.

In addition, officer patrol areas could be coordinated so that game wardens and marine patrol officers are not inspecting the same boats and patrolling the same areas on the same day. Reducing duplicative patrols would expand the areas which Virginia's wildlife enforcement officers are able to cover, and would therefore enhance public safety and wildlife protection.

Consolidation would facilitate cross-training of the agencies' officers, although this should occur even if the agencies are not consolidated. Cross-training the officers would enable them to address violations of the other agency's laws and regulations which are encountered by officers on their routine patrols.

Consolidation would also help to address the marine patrol officers' reported problems with the training they receive. If consolidated with DGIF, and held to DGIF's training standards, marine patrol officers would see improvements in the level of their training.

Consolidating DGIF and VMRC Would Enable More Effective Aquatic Wildlife Management

A consolidated agency would also enable VMRC and DGIF fisheries responsibilities to be carried out more effectively. For instance, a single agency would be responsible for all of fisheries management, and there would not be confusion over which agency is responsible for threatened and endangered marine organisms. In addition, only one agency would be responsible for fish aquaculture permitting, thereby reducing the number of State on-site inspections of aquaculture farms. Further, Virginia's anglers would only have to go to one agency for all fisheries management issues. And, consolidation would eliminate the angler's need to obtain more than one license to participate in recreational fishing statewide.

A wildlife resource agency would provide clarification of these issues and a single approach to these activities. The provision of services would be improved, and greater effectiveness would be realized.

Consolidating DGIF and VMRC Would Improve Protection of Submerged Bottomlands

As previously indicated, the agreement DGIF and VMRC developed to share responsibility for submerged bottomland protection has been ineffective. As a result, bottomlands in the western part of the State are not being adequately protected, and wildlife has been negatively impacted.

Consolidating VMRC and DGIF would enable the permitting and enforcement of submerged bottomland activities throughout the State to be handled by one agency. By having biologists and law enforcement officers throughout the State available to address submerged bottomland issues, Virginia's resources would be better protected.

Consolidating DGIF and VMRC Would Improve Boating Safety Enforcement and Enable More Equitable Use of Watercraft Sales Taxes

DGIF and VMRC are both involved in boating activities. The *Code of Virginia* gives DGIF primary responsibility for the State's boating activities. DGIF is responsible for the registration and titling of every motorized boat in Virginia, and for conducting boating safety classes, building and maintaining boating access sites, investigating boating accidents, and enforcing boating safety regulations throughout the State. DGIF's boating responsibilities include all motorized boats used on both saltwater and freshwater.

However, VMRC is also involved in enforcing boating safety regulations and investigating boating accidents in the Tidewater area. VMRC's boating responsibilities are limited to saltwater activities.

This review has identified a number of problems resulting from the overlap in boating responsibilities. Chapter IV identified examples of duplication of boating safety enforcement in the Tidewater area, and inefficiencies in boating accident investigations.

In 1994, DGIF began receiving funds from the Watercraft Sales and Use Tax to help fund its boating activities since other funding sources were inadequate to fully cover these costs. Once this shortfall has been addressed, however, it would appear that due to its involvement in boating safety enforcement, VMRC should also receive a portion of these funds. Currently, VMRC does not receive any of these funds.

Consolidation of the agencies would result in more efficient management of boating activities and eliminate duplicative boating safety inspections. Further, public confusion would be decreased because all activities related to motorized watercraft would be performed by one agency. In addition, the Watercraft Sales and Use Tax would more appropriately be used for all State boating safety-related activities.

CONCERNS ABOUT CONSOLIDATION

In addition to benefits, there are a number of concerns that need to be recognized and considered regarding a possible consolidation of DGIF and VMRC. A number of these concerns were raised during the study by the management of DGIF and VMRC. There are also some concerns that have been identified by DGIF and VMRC law enforcement staff or by JLARC staff. These concerns include: that the agencies serve different constituents; that the interests of the differing constituents (recreational and commercial fishermen) can be at cross-purposes and, therefore, would be better served in different agencies; that the agencies perform different functions; that there would be significant problems in consolidating the agencies due to different governing structures and funding sources; and that past studies have not embraced consolidation of the agencies. Further, there would likely be some morale and "turf" issues that would arise

with a consolidation. And finally, a consolidation would not likely result in major short-term cost savings.

Constituents Are Generally Satisfied with DGIF and VMRC

One concern raised by both DGIF and VMRC management pertains to the constituent organizations which use the services of the agencies. The management of both agencies stated that they provide services to very different constituencies. For example, DGIF serves a large number of hunting organizations while VMRC serves commercial watermen.

However, while groups such as hunt clubs may not use the services of VMRC, many of the other constituent groups responding to the JLARC staff constituent survey indicated that they do interact with both agencies. These constituent groups of DGIF and VMRC reported representing over 140,000 members. Therefore, the agencies already provide services to many of the same constituents.

DGIF and VMRC management also noted that their constituencies are satisfied with the services currently provided, and changes to the organizational structure might reduce the level of services provided. The JLARC staff survey of constituent associations to natural resource agencies confirmed the constituents' satisfaction with the two agencies. About three-quarters of constituent organizations indicated that they were somewhat or very satisfied with the level of services provided by DGIF and VMRC (Figure 12). Because of their general satisfaction levels, these constituents may be more concerned about preserving the current arrangement with which they are familiar than in the potential improvements that might come through change.

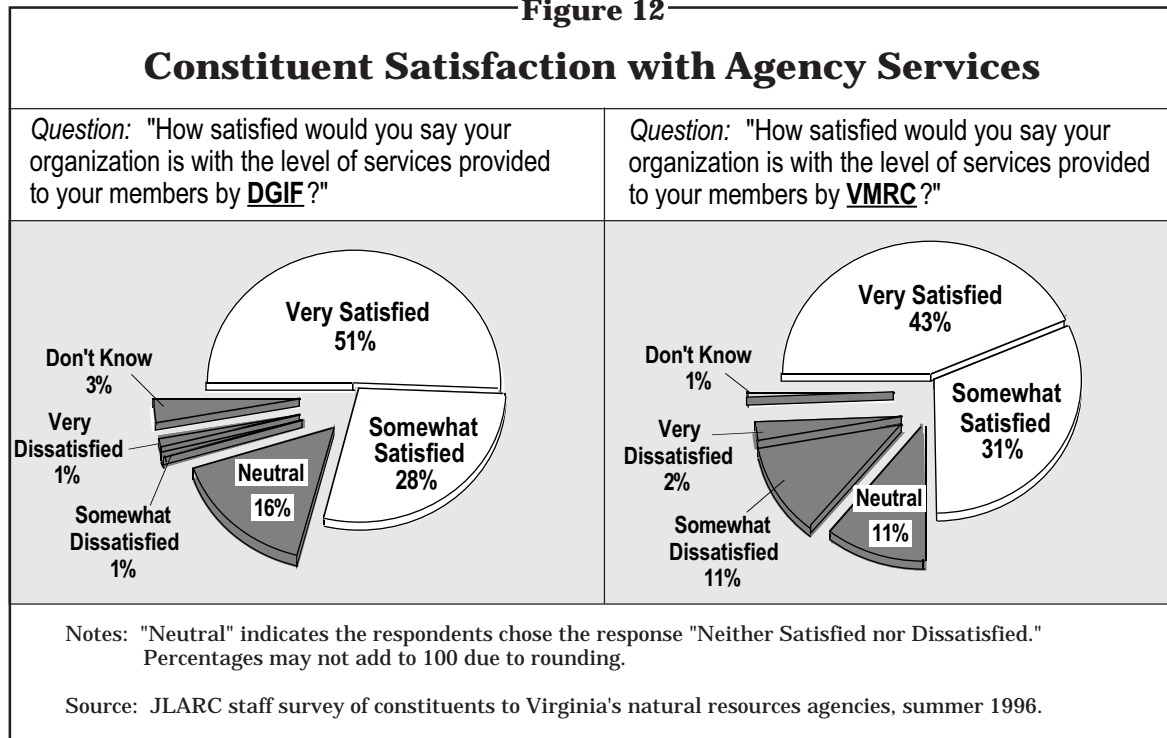
On the other hand, a majority of those organizations which identified themselves as having interaction with only DGIF and/or VMRC also reported that confusion exists over which natural resources agency has responsibility for certain activities. While there is no evidence to suggest a consolidation would result in diminished services to constituents, it would eliminate confusion over which agency had jurisdiction over specific wildlife resource issues.

DGIF and VMRC Have Responsibilities That Do Not Overlap

Although this report has shown that there is overlap between DGIF and VMRC activities, there are still some significant areas where the agencies do not overlap. For instance, some of the primary responsibilities of the agencies do not overlap. These include VMRC's responsibility for commercial fishing, and DGIF's responsibilities for hunting and nongame wildlife management. Although trends indicate that commercial fishing and hunting are declining, they remain primary focuses of these agencies.

In addition, a considerable number of DGIF game wardens, wildlife biologists, and fisheries biologists are located west of Tidewater and have little or no interaction, or

Figure 12



need for interaction, with VMRC staff. Although consolidation may appear to have few benefits for game wardens in these areas, some officers from both agencies reported that cross-training would be a viable approach to expand the capacity of each agency to deal with its busy workload periods, even in their respective areas of specialization.

Both Recreational and Commercial Interests in Resources Require Attention

DGIF management indicated that the two agencies are needed to recognize the needs of both commercial and recreational uses of the State's aquatic resources, particularly since these uses are thought to be conflicting at times. Having two agencies reportedly allows each agency to focus closely on a different type of constituent — recreational anglers for DGIF and commercial watermen for VMRC.

However, as already directed by the *Code of Virginia*, VMRC is required to balance the interests of both recreational and commercial fishermen. Further, it may be argued that the use of two agencies and two boards sets up a situation in which the State itself could be working at cross-purposes. With two agencies and boards, regulations may be developed which are incompatible. Since the Commonwealth's wildlife resources are limited, a single agency that works to resolve potential conflicts and determine an appropriate balance between various constituents' needs, may result in better management of those resources.

There are Concerns That the Agencies' Differing Governing Structures Would Hinder Implementation of a Consolidation

Concerns have been raised by both agencies that the governing body for each agency is different, thus making consolidation of the two inappropriate. The Marine Resources Commission is a regulatory body, responsible for issuing permits and regulations, but not for approving the agency budget or overseeing all the activities of the agency. Further, the Commission and the agency are headed by the same person. In contrast, the Board of Game and Inland Fisheries is a supervisory board — overseeing the actions of the agency and agency director, issuing regulations, and approving the agency budget.

If the agencies were consolidated, a decision would have to be made as to whether the new agency would have one or two boards associated with it and what the nature of the board(s) would be. It appears that one board would be advantageous from the standpoint of having consistency in resource policies, such as the development of fisheries regulations. However, there are potential logistical problems with having only one board. Since most of the citizens who currently have business before the Marine Resources Commission are from the Tidewater area, it would impose a burden on these individuals to require their travel to Richmond, or elsewhere in the State, for Commission meetings.

There is precedence for maintaining separate boards after a consolidation of agencies. For example, after the merger of four agencies the new Department of Environmental Quality maintained separate boards addressing air, water, and waste issues. Concerns with ensuring that all constituencies get adequate representation may require the maintenance of multiple wildlife resource boards, or at a minimum multiple advisory councils. However, care would need to be taken to ensure consistency of decisions between the boards.

There Are Concerns That Differences in Funding Would Negatively Affect Implementation of a Consolidation

DGIF and VMRC management both voiced concern over the issue of funding if the two agencies were to consolidate. VMRC is funded through general funds, federal funds, and special funds, such as license revenues. DGIF is funded solely through special and federal funds. The Board of Game and Inland Fisheries has expressed concern about accepting general funds, with the belief that the agency will lose some of its independence if it is no longer a fully self-supporting agency. Further, both agencies reported that there would be administrative difficulties associated with combining the various funding sources.

However, this concern appears unfounded. Currently, each agency manages many separate funds, with multiple funding sources, and maintains data on numerous cost centers. Most of these funds have restrictions on how the monies can be spent. Therefore, both agencies already have systems in place to ensure fund integrity.

Consolidation would require the use of current accounting procedures applied to additional fund codes.

Further, the agencies receive funding from some of the same sources. And, DGIF receives funding from VMRC for various projects. Consolidation of fund administration would streamline financial management in this case, since no inter-agency transfers of funding would be necessary.

Past Studies Have Not Reached Consensus on the Issue of Consolidation

DGIF and VMRC management both reported that several studies of their responsibilities have been performed in the past which have not concluded that consolidation was needed. While numerous studies have been conducted of both DGIF and VMRC, only two have devoted appreciable attention to the issue of their possible consolidation. The first report, *Management of Virginia State Government* (commonly referred to as the 1975 Hopkins Commission report), advised that these two agencies be consolidated. However, after public hearings were held concerning the report's recommendations, a subsequent summary of priority recommendations issued by the Hopkins Commission in 1976 did not include the recommendation to merge DGIF and VMRC.

The second report, the 1994 *Blue Ribbon Strike Force Report*, addressed the issue of consolidating DGIF and VMRC saltwater and freshwater fisheries management. During this review, staff of the Natural Resources Committee of the Blue Ribbon Strike Force indicated to JLARC staff that its review did not have adequate resources to fully examine the feasibility of a consolidation of DGIF and VMRC, and felt that a more in-depth examination of the issues was warranted. Based on the limited information available, the Blue Ribbon Strike Force concluded that compelling reasons for a merger of saltwater and freshwater fisheries management had not been established, and recommended against a consolidation.

There Would Likely Be Morale and Turf Issues Within the Consolidated Agency

Organizational literature extensively discusses the stresses and strains that are involved in major organizational changes. In Virginia, agencies such as the Department of Education and Department of Environmental Quality, which have engaged in major organizational changes, have experienced disruptions in work and staff morale problems. In the JLARC staff survey of DGIF and VMRC law enforcement officers, a number of officers voiced concerns that there would be turf battles and morale issues if DGIF and VMRC were to consolidate.

A consolidation of the Natural Heritage program and VMRC with DGIF would require special morale problems to be addressed. For example, there currently is some hostility between Natural Heritage and DGIF staff. Also, DGIF and VMRC have different policies about the transfer of law enforcement staff to meet workload demands.

These issues would need to be discussed and an implementation plan developed which would explore these concerns prior to a consolidation.

Major Cost-Savings Through Consolidation Are Unlikely

Consolidation of DGIF and VMRC is not expected to result in substantial cost savings. Rather, the focus or expected outcome of the consolidation would be improved resource management and more streamlined service to constituents. Cost savings are expected to be limited for two reasons: (1) it does not appear that reductions in agency line staff are warranted; and (2) an office would still be needed in the Tidewater area to address marine issues.

Major Reductions in Staffing Levels Do Not Appear Warranted. Both DGIF and VMRC have experienced reduced staffing levels in recent years. While a detailed staffing analysis was not performed as part of this review, a review of staffing in those states with both coastal and inland waterways suggests that Virginia ranks below many other states when comparing the number of staff per capita in wildlife resource agencies.

Staffing is particularly low for certain activities. For example, as discussed in Chapter II, DGIF currently employs only five regional staff devoted to all nongame species throughout the State. Further, DGIF and VMRC law enforcement staff reported their strong belief that they are understaffed to meet the demands they face during peak work times.

Therefore, if consolidation does take place, special attention should be paid to the issue of staffing levels. While there may be some opportunity to reduce selected positions — particularly administrative and management positions — the potential to realize economies from reductions in field staff positions may be unlikely.

Office in Tidewater Area Would Still Be Needed. VMRC management have noted that all of their activities take place within the Tidewater region. Therefore, they believe it is of primary importance to continue to base their operations in the area. Since a major focus of a consolidated agency would be on marine-related activities, it appears appropriate to maintain a regional office within the Tidewater area. VMRC is currently in the first year of a five-year lease on their office space in Newport News. And DGIF leases their Tidewater regional office building, located in Williamsburg. This building currently houses the maximum number of staff for the space available. As a result, there would not likely be short-term cost savings associated with office space and equipment if the agencies were consolidated. However, in the long-term, there may be some potential for cost-savings through consolidation of the two offices within the Tidewater area.

CONCLUSIONS ABOUT THE FEASIBILITY OF CONSOLIDATION

Based on the analyses conducted, a consolidation of DGIF and VMRC is clearly feasible, and a number of benefits would accrue to the State as a result. And, trends suggest that in the future the responsibilities of the agencies will become increasingly similar, which provides an even stronger indication that consolidation is a direction in which the State should move.

However, there are still some concerns which must be considered in light of current agency responsibilities to determine if a consolidation is warranted at this time. For example, it is clear that VMRC does not have a presence west of Tidewater, and that a consolidation would have little impact on DGIF staff outside of Tidewater. It is also clear that VMRC currently has little interest or involvement with hunting issues, and DGIF currently has relatively little interest or involvement with commercial fishing.

In addition, under current conditions at the two agencies, a consolidation is unlikely to result in significant cost-savings. Therefore, accrual of cost-savings is not a strong argument for consolidation. The benefit that appears more likely from a consolidation is a more comprehensive, coordinated management of the Commonwealth's wildlife resources.

If a consolidation is pursued, it needs to be carefully planned and timed. Policy-makers will need to decide when they think that the point has been reached that the benefits of a consolidation clearly outweigh the risks or disruptions that might be entailed in this change. Further, if policy-makers are interested in pursuing a consolidation, it will be important to develop a detailed implementation plan addressing how the consolidation will occur and how it will work.

Therefore, at some point the General Assembly may wish to require the Secretary of Natural Resources to develop a consolidation plan that addresses the issues raised in this report, and submit an executive reorganization plan to the General Assembly as indicated in Sections 2.1-8.1 through 2.1-8.8 of the *Code of Virginia*. The plan should focus on better use of existing staff, and should ensure that there is no decrease in services to constituents. Further, development of the plan should allow for input from staff and constituencies of the agencies.

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