

**House Bill 38 and Future Directions for  
The Department of Game and Inland Fisheries**

**Results of Constituent and Staff Studies  
and Recommendations for Future Action**

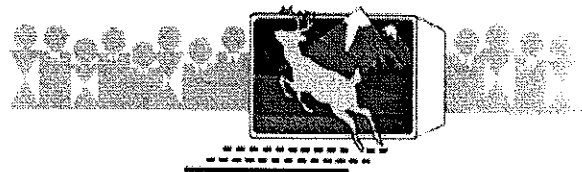
**Conducted for:**

**The Virginia Department of Game & Inland Fisheries**

**By:**

**Steve L. McMullin, Ph.D.  
Dept. of Fisheries & Wildlife Sciences  
Virginia Tech  
Blacksburg, VA 24061-0321  
(540) 231-8847**

**Mark Damian Duda  
Responsive Management  
P.O. Box 389  
Harrisonburg, VA 22801  
(540) 432-1888**



**and  
Brett A. Wright, Ph.D.  
14807 Hickory Post Ct.  
Centreville, VA 20121-2174  
(703) 815-8528**

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## INTRODUCTION

The 1998 Virginia General Assembly unanimously approved House Bill 38, a measure that allocates up to \$13 million per year in existing sales tax collections to the Virginia Department of Game and Inland Fisheries (Department). The actual amount of new funding the Department will receive (estimated to be \$12.3 million in Fiscal Year 2001) is based on expenditures by anglers, hunters and wildlife watchers as estimated by the National Survey of Fishing, Hunting and Wildlife-Associated Recreation, a survey conducted by the U. S. Fish and Wildlife Service approximately every 5 years.

The infusion of new funds in the Department's budget is significant for several reasons. First and foremost, it keeps the agency solvent. Without House Bill 38, according to a legislative auditor's report, the Department would exhaust its cash reserves and be unable to maintain its programs at their current levels. However, HB 38 does not provide a long-term solution for the Department's financial situation, and it is likely that inflation and other legislatively mandated financial commitments will have a considerable impact on the new revenues generated by this funding source. Second, House Bill 38 provides the Department with significant funding based on wildlife-associated recreation other than hunting, fishing or boating for the first time. Thus, all Virginians who have an interest in wildlife are now paying constituents of the Department. Historically, all but a tiny fraction of the Department's funding was derived from traditional resource users—anglers, hunters and boaters. This change in status among the Department's constituents creates an interesting dilemma—how to address the needs of a broader constituency without diminishing the importance of the traditional constituents who have been instrumental in supporting wildlife conservation for over 60 years.

The Department's leaders recognized that a comprehensive plan, based on input from all constituents, was needed as a result of the new funds provided by House Bill 38. Consequently, the Department (with approval from the Board of Game and Inland Fisheries) contracted with Virginia Tech, Responsive Management and Dr. Brett Wright to survey all major internal and external constituent groups in an effort to determine their priorities for the Department. This draft report presents highlights of survey results and detailed recommendations based on those surveys. After review of this draft report by Department personnel and external constituents, a final report will be prepared and transmitted to Department leaders by March 1, 2000. The data generated by the surveys are extensive and will be appended to the final report. In the future, Department personnel will be able use these data to conduct many additional analyses that were not possible given the short time frame in which this study was conducted.

## METHODOLOGY

The study was conducted in three phases. In the first phase, we conducted scoping meetings with Department employees in every administrative region of the Commonwealth and in the Richmond headquarters. In the scoping meetings, we asked employees to identify issues of importance within the four major categories of the Department's programmatic budget (Capital Improvements, Recreation, Environmental Diversity and Education). We also asked them to specify information that they would like to see collected from external constituents by way of our surveys. Results of the scoping meetings provided many useful ideas in the design of surveys.

In the second phase of the study, we conducted surveys of both internal and external constituents. Virginia Tech's Department of Fisheries and Wildlife Sciences conducted a mail survey of Department employees during the spring and summer of 1999. Employees responded to questions designed to determine which programs they thought the Department should spend more, less or about the same amount of time and money on. They also rated the Department's performance on existing programs. Eighty percent of the Department's employees responded to the survey.

Responsive Management conducted four separate surveys of the following external constituent groups: 1) the general population, anglers, and nonconsumptive wildlife enthusiasts, 2) Virginia landowners, 3) Virginia hunters and 4) Virginia boaters. The survey instruments were designed to assess Virginia residents' and constituents' attitudes and opinions toward the Department, awareness of the Department, agency and program ratings, attitudes toward various programs and program emphases, opinions on law enforcement, attitudes toward consumptive and nonconsumptive wildlife-related recreational activities, sources of information, and many other issues. The constituent surveys—hunters anglers, boaters and landowners, focused on specific issues as they related to each particular group. Samples were large enough in each group to detect regional differences and similarities.

Data were collected using Computer-Assisted Telephone Interviews (CATI) procedures. Each interview averaged 10 - 12 minutes in length. Interviews were conducted Monday through Friday from 9:00 a.m. to 9:00 p.m. and Saturday from 10:00 a.m. to 4:00 p.m., local time. A five-callback design was used to maintain the representativeness of the sample, avoid bias toward people easy-to-reach by telephone and provide an equal opportunity for all to participate. The sample of Virginia residents was selected from the state population through random digit dialing (RDD) numbers, which were purchased from Survey Sampling Inc. of Fairfield, Connecticut. The use of RDD to generate the sample of resident telephone numbers in Virginia ensured a random, proportionally stratified sample of Virginia residents. The samples of licensed hunters and boaters were obtained from the Department. The samples of licensed anglers and landowners were obtained from Department records and individual Virginia county land records, respectively.

The numbers of completed interviews for the surveys were as follows: general population (806), anglers (793), nonconsumptive wildlife enthusiasts (827), Virginia landowners (530), Virginia hunters (826) and Virginia boaters (849). General population and boater data were

weighted by regions for statewide representation. Regional data for nonconsumptive wildlife enthusiasts, anglers and hunters were each averaged for statewide representation. Regional boater data were weighted in proportion to statewide representation. All findings were reported at the 95% confidence level. The sampling error for each study, excluding boaters, was plus or minus 4%; the sampling error for the boater study was plus or minus 5%. Findings were reported regionally as well as statewide and emphasis was placed on pointing out the differences in opinions by region, age, gender, urban-rural and any other variables that were important to the Department.

The final phase of the study is ongoing and consists of analysis of the survey data, generation of recommendations to the Department and incorporation of feedback on those recommendations into a final report.

## HIGHLIGHTS OF SURVEY RESULTS

### Employee Survey

- Employees felt that slightly more time and resources should be allocated to nearly all of the agency's current programs; they felt less time and resources should be allocated to only three items on the questionnaire (all related to deer management on private lands)
- Employees demonstrated strong commitment to agency functions that support traditional uses of fish and wildlife, acquisition of land and providing information and education to Virginia citizens.
- The highest priority items identified by employees included (1) enhancing public awareness of VDGIF and its programs, (2) providing more recreational opportunities for children and youth, (3) educating and informing citizens in general about fish, wildlife and boating-related issues, and (4) acquiring new lands.
- The lowest priority items identified by employees included (1) issuing out-of-season deer kill permits, (2) the Damage Control Assistance Program (DCAP), and (3) the Deer Management Assistance Program (DMAP).
- 76% of the agency's employees considered information and education to be a big part of their jobs and they generally were more supportive of decentralized approaches to providing information and education than they were of agency-wide, formal education programs.
- While employees rated all enforcement functions as high priorities, they rated enforcement of laws that protect fish and wildlife habitat as the highest priority of all enforcement functions.
- Employees felt that the agency is performing best in the areas of hunter safety programs, enforcement of boating regulations and management of game resources.
- Employees felt that the agency is performing worst in the areas of acquiring additional land and water for wildlife conservation, providing recreational shooting range opportunities and providing recreation-oriented capital investments on wildlife management areas (e.g., camping areas, hiking trails, interpretive facilities, observation platforms).
- Employees' ratings of the agency's performance for acquisition of land and water for wildlife conservation and for educating and informing citizens in general about fish, wildlife and boating-related issues were poor in relation to the priorities attached to those items.

## Board Interviews

- Among the most important changes Board members hoped to see as a result of HB 38 were improved communication and technology to assist in communication between the agency and its stakeholders. They also hoped to better understand factors affecting participation in fish and wildlife-associated recreational activities, and to put that understanding to use in maintaining high levels of interest in fish and wildlife among Virginians.
- Although Board members had many ideas about which program areas should be given most emphasis in the future, two common themes were education and recruitment of hunters and anglers in the future.
- Two-thirds of the Board members interviewed felt that efforts to provide information to constituents should be increased and none felt those efforts should be decreased.
- Nearly all Board members felt efforts to provide assistance to landowners in management of wildlife on their lands should be increased.
- Board members were strongly supportive of increasing education efforts, with nearly all of them supporting increased effort in hunter education, boating education and wildlife education. Board members were less inclined to support increasing efforts in aquatic education (6 out of 9 felt it should remain the same).
- Three of the 9 Board members interviewed felt enforcement of fishing, hunting and boating regulations should be increased, while the other 6 felt current levels of enforcement should be maintained.
- Board members were approximately evenly split over increasing efforts to manage game fish and wildlife or maintaining current levels. None of the Board members felt efforts to manage game fish and wildlife should be decreased.
- Board members were less inclined to support increased efforts to manage nongame wildlife (only 3 members supported increasing efforts in this area) and 7 out of 9 Board members felt current levels of nongame fish management should be maintained (only 1 member felt efforts to manage nongame fish should be increased).
- Six out of 9 Board members felt the agency should acquire more lands for wildlife-associated recreation and that more effort should be made to develop and maintain facilities on existing department-owned lands.
- Board members perceived a great need for capital projects (land acquisition, facilities construction and maintenance). They generally felt that the maximum allocation of 50% of HB 38 funds to capital projects was appropriate, and in some cases, not enough.

## General Population Survey

- Virginians tended to value proper management of fish and wildlife populations and the existence of wildlife more highly than opportunities to fish, boat or hunt (although these opportunities still were highly valued).
- 75% of Virginians said the Commonwealth's wildlife populations are very healthy or somewhat healthy.
- Almost one-third of Virginians felt the deer population in their county should be decreased. More than one-third of the residents of northern Virginia and the southern Piedmont felt the deer population should be decreased, while only about one-fifth of the residents of the Tidewater region felt the deer population should be decreased.
- 75% of Virginians strongly approved or somewhat approved of legal hunting and 93% of Virginians approved of legal recreational fishing, however, 59% disapproved (45% strongly disapproved) of legal trapping.
- Only 10% of Virginians could name the agency responsible for managing and protecting wild animals in Virginia and the majority of Virginians either had erroneous ideas of how the agency is funded or did not know how the agency is funded.
- Nearly all Virginians who expressed an opinion, were very satisfied or somewhat satisfied with the department as a governmental agency, however, more than half of Virginians were neutral or did not know.
- Most Virginians felt that it is very important for the department to (1) provide hunter safety education, 83%, (2) enforce laws that protect fish and wildlife habitat, 82%, (3) protect threatened and endangered species and provide boater safety education, both 79%, and (5) enforce fishing, hunting and boating laws, 78%.
- 70% of Virginians strongly support instituting a mandatory 6 to 8 hour boating safety course.
- A majority of Virginians opposed Sunday hunting during the legal hunting season, with 44% strongly opposing Sunday hunting.
- 34% of Virginians had problems with wild animals and 16% of Virginia households had a family member involved in a deer-vehicle collision in the past two years.
- More than one-half of Virginians are interested in information about (1) viewing wildlife, (2) what to do with injured wildlife, (3) dealing with nuisance wildlife, and (4) enjoying wildlife around their homes.
- 9% of Virginians hunted, 42% fished, 36% went boating or jet skiing and 20% took a trip primarily to watch or photograph wildlife in Virginia during the last two years.

- 63% of Virginians who said they did not fish in the last 2 years expressed interest in going freshwater fishing, 66% of those who did not go boating expressed interest in doing so and 52% who did not take wildlife viewing trips expressed interest in doing so. Only 11% of Virginians who did not hunt during the last 2 years expressed interest in going hunting (however, this is approximately equal to the number of Virginians who hunted in Virginia during the last 2 years).

### Hunter Survey

- 89% of hunters were very satisfied or somewhat satisfied with their hunting experiences over the past two years.
- 35% of hunters felt access to private lands is poor and 53% felt access to private lands has gotten worse over the past 5 years. This is especially significant because 64% of hunters hunted exclusively on private land and 86% of hunters hunted at least some of the time on private land.
- 16% of hunters felt access to public lands is poor (and 25% said fair).
- 23% felt access to public lands has gotten worse over the past 5 years.
- 85% of hunters experienced no interference from other recreationists that reduced their enjoyment.
- Deer, spring turkey, fall turkey, squirrel and dove hunters expressed high levels of satisfaction with their hunting experiences during the 1997-98 and 1998-99 seasons.
- Relatively high levels (>20%) of dissatisfaction with hunting experiences were expressed by bear, rabbit, grouse, quail and duck hunters.
- Lack of time is the biggest constraint to hunters' satisfaction; very few hunters felt that poor behavior of other hunters or safety concerns detracted from their satisfaction.
- Hunters were highly satisfied with the department, its efforts to provide hunting opportunities, and how well the department incorporates hunters' wants and needs into management of wildlife.
- 70% or more of hunters felt the department should provide much more or somewhat more effort on (1) encouraging private landowners to open access to their land for more hunting use, (2) acquiring more state-owned land to increase opportunities to hunt, and (3) improving habitats on public land to increase the number of animals to hunt.
- Game management and hunting regulations topped the list of topics about which hunters expressed interest in receiving information, however, the next four items on the list all dealt with access and where to go hunting. 64% of hunters would be interested in receiving information about how to get involved in wildlife conservation.



- Hunters identified direct mail as the best way to provide them with information by a wide margin. Nine percent of hunters statewide (17% in the tidewater region and 13% in Northern Virginia) identified the internet/world wide web as the best way to provide them with information—a figure that will surely grow.

- Hunters were strongly polarized on the issue of Sunday hunting—34% strongly supported it, while 45% strongly opposed it.

- 40% of hunters had personal contact with an enforcement officer during the last 5 years, and 75% of those hunters strongly agreed the officer was professional.

### Angler Survey

- 82% of anglers were very satisfied or somewhat satisfied with their freshwater fishing experiences in the past two years, however, one out of six anglers expressed some level of dissatisfaction.

- Anglers were highly satisfied with the current fishing regulations and felt they were clear and easy to understand.

- 36% of anglers felt the quality of fishing in Virginia has declined in the last 5 years. 15% felt the quality of fishing had improved, while 19% felt it had remained about the same.

- 25% of anglers said jet skiers (and another 9% said other boaters) reduced their enjoyment, however, two-thirds of anglers said they experienced no interference from any other recreationists that reduced their enjoyment.

- Anglers who fished for warm water species (largemouth bass, smallmouth bass, catfish and crappie) expressed high levels of satisfaction with their fishing experiences over the past 2 years.

- Anglers who fish for trout (especially rainbow trout and brown trout) were less satisfied with their fishing experiences, with about one-third expressing dissatisfaction.

- Most fishing occurs close to home—50% of anglers traveled less than one hour for a day of fishing and 84% traveled less than 2 hours.

- 73% of anglers were very satisfied or somewhat satisfied with the department as a governmental agency; less than 10% were dissatisfied.

- 60% of anglers felt the department does a good to excellent job of incorporating anglers' wants and needs into management of the state's fisheries; only 5% felt the department does a poor job.

- Clean water and where to fish topped the list of subjects about which anglers would be interested in receiving information.

- 49% of anglers felt the department should provide much more effort on water quality and improving aquatic habitats; 46% felt the department should provide much more effort on acquiring more public areas and 40% identified encouraging private landowners to open access to their waters.

- As with hunters, anglers identified direct mail as the best way to provide them with information.

- 13% of anglers identified the internet/world wide web as the best way to provide them with information—surpassing newspapers as a source of information.

- 54% of anglers had personal contact with an enforcement officer during the past five years.

### Boater Survey

- 63% of boaters were very satisfied and 31% were somewhat satisfied with their Virginia boating experiences in the past 2 years, however, 22% of boaters said the quality of boating has declined in the last 5 years.

- 70% of boaters travel less than one hour for a day of boating and 92% travel less than 2 hours.

- Boaters were polarized over the issue of requiring all operators of motor-powered watercraft to be licensed. A slight majority agreed (45% strongly agreed), but 37% disagreed (24% strongly disagreed)—few people were neutral about the issue.

- 54% of boaters have had personal contact with an enforcement officer during the past 5 years and 67% have seen officers on patrol while they were boating.

- 78% of boaters who had personal contact with officers strongly agreed that they were professional.

- Boaters were generally satisfied with boating facilities (62% said there were no boater access facilities they would like to see built or improved); however, 20% of boaters (26% in the Tidewater region) would like to see more boat ramps built.

- Safety and access issues topped the list of items that boaters felt the department should spend much more effort on. Safety issues included controlling boaters under the influence of alcohol or drugs, controlling reckless operation and boating safety education.

- Relaxation, being with friends and family and being close to nature topped the list of reasons why Virginians own a boat, but 84% said they owned a boat to fish; most boaters are mainstream constituents of the agency.

- 84% of boaters were very satisfied or somewhat satisfied with the department; less than 5% were dissatisfied.

- 63% of boaters strongly supported or somewhat supported instituting a mandatory boating safety course for boaters other than jet skiers. 87% supported (79% strongly supported) a mandatory boating safety course for jet skiers.
- 43% of boaters said they experienced interference from jet skiers during the past 2 years that reduced their enjoyment. 16% said other boaters (excluding jet skiers) reduced their enjoyment.
- Maps and charts, fishing, safety issues and location of boat ramps topped the list of items about which boaters said they would be interested in receiving information.
- Direct mail (59%) and the internet/world wide web (14%) were the best ways to provide boaters with information.

### **Nonconsumptive Users Survey**

- 33% of Virginians took a trip of at least one mile during the last 2 years to observe, photograph or feed wildlife, and of those who did not take a trip, 66% said they would consider doing so (i.e., 77% either took a trip or would consider doing so).
- 85% of Virginians took a special interest in wildlife (closely observing, feeding or trying to identify) in wildlife within one mile of their homes during the past 2 years.
- 71% of nonresidential wildlife viewers made trips to federal lands to view wildlife, 55% to other state-owned lands, 50% to private lands, 47% to locally-owned public areas, and 33% to state wildlife management areas.
- 98% of nonresidential wildlife viewers were very satisfied or somewhat satisfied with their viewing trips over the past 2 years.
- White-tailed deer (69%), ducks and geese (62%) and hawks, owls or eagles (60%) topped the list of animals that people made trips to view in the past 2 years.
- Hawks, owls or eagles (81%) and black bears (74%) topped the list of animals Virginians would be interested in taking a trip to view in the next 2 years.
- 32% of nonresidential wildlife viewers said the number of trips or level of their wildlife viewing increased in the last 2 years.
- Nature trails (63%) and printed materials (62%) topped the list of items that would significantly add to the enjoyment of users of wildlife viewing areas, followed by outdoor educational displays (52%), restrooms (41%) and viewing blinds and observation towers (41%).
- Items that would strongly add to enjoyment of viewing area for those Virginians interested in taking future trips included nature trails (69%), restrooms (60%), printed materials (59%) and outdoor educational displays (55%).

- Nonresidential wildlife viewers tended to travel further and travel overnight more often than other recreationists: 67% said they take overnight trips to view wildlife, 44% said they travel more than 2 hours for a day trip to view wildlife.

- 80% of nonresidential wildlife viewers said they did not experience any interference from other recreationists that reduced their enjoyment.

- Where to view wildlife (85%) and how to identify wildlife (79%) topped the list of topics about which nonresidential wildlife viewers would be interested in receiving information. Other topics of broad interest included how to help injured wildlife (73%), information on specific species (71%), ethical conduct in the outdoors for wildlife viewers (71%), how to get involved in wildlife conservation efforts (68%) and how to view wildlife (67%).

### **Landowner Survey**

- 90% of Virginia landowners ( $\geq 40$  acres) strongly or somewhat approved of legal hunting and 94% approved of legal fishing, while a smaller percentage (59%) approved of legal trapping.
- 97% of Virginia landowners thought it was very or somewhat important to know that people have the opportunity view wildlife. They also valued opportunities to fish (96%), to hunt (94%), to have wildlife around their homes (92%) and to know that they can participate in providing habitat for fish and wildlife (89%).
- On their own tracts of land, Virginia landowners placed the most importance on caring for and protecting fish and wildlife (93%) and on wildlife viewing (89%). They placed less importance on hunting (78%), farming (78%), timber production (73%) on their tracts of land and fishing (62%).
- 83% of Virginia landowners allowed hunting on their lands.
- 19% of Tidewater region landowners (who allowed hunting on their lands) charged a fee. Less than 5% of landowners in the rest of the state who allowed hunting charged a fee.
- 67% of Virginia landowners strongly opposed Sunday hunting only 13% strongly favored it.
- 21% of Virginia landowners experienced problems with hunters who did not hunt with dogs and 15% experienced problems with hunters who hunted with dogs. The major problem cited by landowners was trespassing (69% and 59% respectively).
- Only 7% of Virginia landowners experienced any problems on their land with people who fish.
- Legal liability was a major concern for 51% Virginia landowners in considering whether to allow outdoor recreation on their property.

- Prior to taking this survey, 83% of Virginia landowners were totally unaware of Virginia's recreational use statute.
- 42% of Virginia landowners experienced problems with nuisance animals or damage to their lands within the last two years. Deer were the most common source of problems for landowners in every region except southwest Virginia, where coyotes were a more frequent source of problems.
- Most Virginia landowners knew a moderate amount (37%) or a little (35%) about the activities of the Virginia Department of Game and Inland Fisheries. Smaller percentages reported knowing a great deal (13%) or nothing (13%) about the Department.
- Nearly two-thirds of Virginia landowners were somewhat satisfied (40%) or were very satisfied (25%) They also valued with the Virginia Department of Game and Inland Fisheries as a governmental agency.
- Landowners were mixed in their awareness of the Virginia Department of Game and Inland Fisheries programs for landowners: 23% knew a moderate amount, 40% knew a little, and 26% knew nothing about the landowner programs.
- Landowners were also mixed in their opinions of how well the Department incorporates landowners' want and needs into the management of the state's fish and wildlife, and hunting and fishing programs. Eleven percent rated the Department as excellent, 32% rated the Department as good, 22% rated the Department as fair, 8% rated the Department as poor and 28% did not know.

## Highest Priority Recommendations

**Recommendation 1. The times demand, and the moment is opportune, for the VDGIF to expand beyond its traditional game management programs and activities to develop a more comprehensive approach to wildlife resource management.**

The mission of the VDGIF is:

To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth;

To provide opportunity for all to enjoy wildlife, inland fish, boating and related recreation;

To promote safety for persons and property in connection with boating, hunting and fishing.

Because the agency has traditionally been funded almost exclusively from licenses, other fees and excise taxes paid by sports persons, implementation of this all-encompassing mission has focused on the traditional activities of hunting, fishing and boating, although all wildlife have benefited from habitat management and protection. While House Bill 38 alters that funding formula by incorporating wildlife watching and other values for wildlife in addition to traditional uses, it does not change the agency's mission.

Virginians support traditional activities of the VDGIF, including hunting, fishing, hunter education and most other programs and activities currently managed by the agency. Ninety-three percent of Virginians approve of legal recreational fishing, 75% of Virginians approve of legal hunting and 83% of Virginians feel it is very important for the VDGIF to provide hunter safety education programs. In fact, Virginians rated hunter safety education above 11 other fish, wildlife and boating programs presented to them. Additionally, 84% of Virginians agree that hunting should continue to be a legal activity and 80% of Virginians agree that animals can be used by humans as long as the animal does not experience undue pain and suffering.

Although Virginians support the traditional activities of the VDGIF, our surveys indicate that the agency could be in better alignment with Virginian's values and attitudes toward natural resources and outdoor recreation. It is very important to a majority of Virginians that fish and wildlife populations are properly managed, that wildlife exists in Virginia and that people have the opportunity to view wildlife in Virginia. It is less important to Virginians that people can fish, boat and hunt in Virginia. It is least important to Virginians that wildlife doesn't interfere with other activities. Virginians also expressed more of an interest in wildlife viewing, boating and fishing than they did in hunting, although it is clear there is a larger untapped market for all of these activities, including hunting. Agency employees placed much greater emphasis on traditional, consumptive uses of fish and wildlife than did their constituents. Employees placed less emphasis on the importance of nontraditional uses and management of nongame resources.

The VDGIF is in a good position to expand its vision and management activities from its current primary orientation toward fish and game species for sportsmen and women to a more comprehensive focus of serving all Virginians. Economic justification for this expansion of focus is evident in the HB 38 funding formula. HB38 funding is based on expenditures for wildlife-associated recreation as estimated by the 1996 National Survey of Hunting, Fishing and Wildlife-Associated Recreation. The National Survey estimated that recreationists spent \$2.04 billion for total wildlife-associated recreation in Virginia during 1996. Anglers accounted for 40% of that total (\$821.3 million), wildlife watchers accounted for 34% of the total (\$698.2 million) and hunters accounted for 26% (\$518.9 million). The VDGIF should concentrate on an expenditure plan that would increase funding on nontraditional fish and wildlife programs.

The important point of this recommendation is that the Department enlarge its natural resource and outdoor recreation management orientation, not change its direction. The VDGIF has been extremely successful in its traditional focus and the agency should build upon its successes. Our surveys show that almost all hunters (77%), anglers (73%) and boaters (84%) are satisfied with the Department and support its programs. Dissatisfaction ratings among these groups were in the single digits. Overall, satisfaction ratings among the agency's current core constituent groups are better than good, they are excellent. However, when one moves beyond these core constituent groups, the Department becomes largely an unknown entity offering few programs, products or services for nontraditional users. Most Virginians do not know what the agency does nor do they hear anything about the Department. Only 10% of Virginians could accurately identify the Virginia Department of Game and Inland Fisheries as the state agency responsible for managing and protecting wild animals in Virginia. Sixty-eight percent of Virginians stated they knew a little to nothing about the activities of the Department and only a minority could accurately identify the activities of the Department or its funding source.

We believe that in order for the agency to become aligned with Virginians' attitudes toward fish and wildlife management, and for the Department's programs and services to become more in line with its mission statement, it must expand beyond its traditional game management roots to become a truly comprehensive fish and wildlife agency.

Specifically, we recommend that the agency:

1. Increase nongame wildlife management programs.
2. Expand endangered species programs.
3. Increase emphasis on land acquisition programs for fish and wildlife conservation and for a spectrum of wildlife-related recreational activities.
4. Increase wildlife viewing programs for Virginians who currently take trips to view wildlife.
5. Develop a wildlife appreciation program for Virginians who take a special interest in wildlife around their home.
6. Take an active role in dissemination of information and coordination of responses regarding nuisance animal control.
7. Expand public-private partnerships in wildlife rehabilitation.

Several of these items are discussed in more detail in subsequent recommendations.

**Recommendation 2. Every stakeholder group should benefit from HB 38. The benefits they receive from HB 38 should be made known to that group.**

A variety of constituent groups supported and assisted in the passage of HB 38. Additionally, the revenue from HB 38 is derived from a wide-range of constituent groups including hunters, anglers, boaters, wildlife viewers, wildlife photographers and people who watch and feed wildlife around their homes. Although the VDGIF made no specific promises, each of these constituent groups should expect VDGIF programs and activities to more fully reflect the broad-based nature of funds received from HB 38. Agency leaders may view HB 38 as a short-term solution to the problem of keeping the VDGIF solvent, but constituents will almost surely expect that such a substantial increase in the agency budget would result in new programs or services. We believe the agency must be able to demonstrate how constituents have benefited from HB 38. Furthermore, all major constituent groups should realize benefits from HB 38—and be aware of those benefits. Our surveys suggest numerous possibilities for benefiting each constituent group. A few of these ideas are listed below.

For hunters, we recommend that the VDGIF:

- Make access to hunting lands, especially private lands, a priority. Virginia hunters want more access to hunting lands. Access to private land is very important to Virginia hunters while access to public land is important but to less of a degree (64% of hunters hunted mostly on private land, while only 13% of hunters hunted mostly on public land). Hunters from Region 5 and Region 3 appear to have the most urgent need for access to both public and private lands. For a more detailed description of strategies for improving access to private lands, see Recommendation 5.
- Focus on local hunting opportunities. A majority of Virginia hunters hunt less than an hour from their home. Also, the only major dissatisfaction among Virginia hunters besides access issues are related to not having enough time to go hunting. The “no time” issue is directly related to work obligations. In light of these time and work constraints, local opportunities become even more important.
- Look into management strategies that could increase satisfaction levels for bear, rabbit, grouse and quail hunters, for whom dissatisfaction levels were highest.
- Increase information dissemination efforts to hunters. Virginia hunters want information on a variety of issues, including game management, hunting regulations, public hunting areas, hunting access, private hunting areas and where to hunt. A substantial number of Virginia hunters also want to get involved in wildlife conservation and it is highly recommended that the VDGIF pursue harnessing this interest for the good of both wildlife conservation and enhancing hunting opportunities.
- Work toward increasing awareness of the activities of the VDGIF among Virginia hunters. More than a third of Virginia hunters (38%) said they knew only a little to nothing about the activities of the Department.



For anglers, we recommend that the VDGIF:

- Investigate why more than a third of Virginia anglers feel that the quality of fishing has declined in the last five years. This could be an early warning signal that fishing participation in Virginia may decline in the future. Perceptions of declines in fishing quality are especially relevant to anglers from Region 5 where almost half (47%) felt that the quality of fishing in Virginia had declined in the past five years.
- Make access to fishing areas a priority. Virginia anglers want more access to areas to fish. Access is more important than numerous other issues, including having opportunities to catch big fish, lots of fish, fish hatcheries, urban fishing programs, fly fishing opportunities and many other services and programs the Department provides.
- Incorporate the motivations of anglers into the agency's fisheries management approach. Most Virginia anglers fish for relaxation, while only 4% fish to catch large fish. While current VDGIF fisheries management programs appear to be focused primarily on the product (fish), the experience (fishing) may be equally or even more important. The angler survey showed that anglers derive multiple satisfactions from fishing, of which the product (fish) is only a part. Relaxation, naturalistic values and being with friends and family are major parts of the fishing experience. Utilitarian values are decreasing while naturalistic, familial and relaxation values are increasing. The implication of this trend is that managing for angler satisfaction by agencies like the VDGIF will involve a balance between the "service" and the "product". Focusing solely on big fish or more fish in management strategy regimes may not result in increased angler satisfaction in the future.
- Continue to emphasize the issue of jet ski operator safety. Twenty-five percent of anglers stated they had experienced interference from jet skiers in the past two years (for more details, see Recommendation 7).
- Develop management strategies to increase angler satisfaction levels for striped bass, rainbow trout and brown trout fishing, where dissatisfaction levels were highest among anglers.
- Focus on local fishing opportunities. Half of Virginia anglers go fishing less than an hour from their home. Also, an important reason for dissatisfaction among Virginia anglers is related to not having enough time to go fishing and this is because of work obligations. In light of the work and time constraints, local opportunities for fishing become even more important.
- Take advantage of the high levels of interest among Virginia anglers to get involved in fisheries conservation. Most Virginia anglers are conservationists first and recreationists second and 58% of them wanted information on how to get involved. Water quality and improving aquatic habitats are top priorities for Virginia anglers, over and above having more opportunities to catch lots of fish.
- Develop strategies to increase awareness of the activities of the VDGIF among Virginia anglers. More than a third of Virginia anglers (41%) said they knew only a little to nothing about the activities of the Department.
- Increase information dissemination efforts to anglers. Virginia anglers want information on a variety of issues, but of most importance is information on clean water, where to fish and fishing regulations. Information on fishing regulations appears to be needed more in Regions 1 and 3.

For boaters, we recommend that the VDGIF:

- Maintain the high level of Department law enforcement efforts focused on boaters and boating safety. More than a third (36%) of Virginia boaters said they want to see more Department law enforcement officers while boating. Fifty-two percent of boaters want to see the same number of Department law enforcement officers while boating. Given the current heavy emphasis on boating enforcement, it is probably not practical to increase boating enforcement efforts significantly. However, we recommend a continued emphasis on controlling boating under the influence of alcohol or drugs and reckless operation of boats.
- Continue to emphasize the issue of jet ski operator safety. Forty-three percent of Virginia boaters said they experienced interference from jet skiers while boating in Virginia in the past two years, a completely unacceptable figure. The Department should consider the benefits that might result from a mandatory course that jet skiers must take before operating one. An astounding 87% of boaters supported such a mandatory course with almost all of that support coming from those who strongly support such a course.
- Consider the potential benefits that might result from the licensing of motor-powered watercraft operators. A majority of Virginia boaters (58%) support such a license although 37% oppose such an effort (21% strongly opposed mandatory licensing). Polarization of boaters regarding licensing suggests that this issue would be controversial.
- Gather additional information to determine why 22% of Virginia boaters feel that the quality of boating has declined in Virginia in the last five years.
- Focus on local boating opportunities. Seventy percent of Virginia boaters travel less than one-hour for a day of boating.
- Recognize that Regions 1 and 5 should have high priority when considering acquisition and construction of additional boat ramps.
- Increase information dissemination efforts to boaters. Virginia boaters want information on numerous issues, including maps and charts, fishing, boating safety courses, safe boating operations, and boat ramps and boat ramp locations. As with other constituent groups, direct mail is the best means of providing information, however, 14% of boaters, more than any other group except nonconsumptive users, identified the internet/World Wide Web as the best way to provide them with information.

For Virginians who take trips to view wildlife we recommend that the VDGIF:

- Increase efforts to provide Virginians who take trips to view wildlife with information on where to view wildlife. The VDGIF should begin to develop a network of wildlife viewing areas identified in the Virginia Wildlife Viewing Guide, which identified 80 of the best sites to view wildlife in Virginia. The Department should increase dissemination of the book and sign Virginia's highways with the binocular logo and directions to these sites (as many other states with viewing guides have already done). Not only would these efforts increase satisfactions for Virginia wildlife viewers, but it would also enhance the likelihood of increasing participation among Virginians who have not taken trips to view wildlife but

expressed interest in doing so (38% of the Commonwealth's adult population). A network of signs on Virginia's highways would provide highly visible evidence of the benefits of HB 38.

- Explore the development of partnerships with the Virginia travel industry to provide additional wildlife viewing opportunities for wildlife viewers. Two-thirds of wildlife viewers take overnight trips to view wildlife and almost half (47%) usually travel more than two-hours (one-way) for a day trip to view wildlife in Virginia.
- Consider partnerships with other agencies to provide additional wildlife viewing opportunities. Seventy-one percent of wildlife viewing trips in Virginia were made to federal lands. State and local parks also provide many wildlife viewing opportunities.
- Provide additional nature trails, printed materials and outdoor educational displays at prime wildlife viewing areas in Virginia. These are most wildlife watchers' top preferences for amenities at wildlife viewing areas and they are also relatively inexpensive investments.
- Develop guidelines, informational and educational materials on ethical wildlife viewing. Sixty-two percent of Virginia wildlife viewers agree that a lot of wildlife viewers violate wildlife laws or practice unethical behavior while viewing wildlife. Although all regions should be targeted with this information, it appears this information is most needed in Northern Virginia. The emphasis should be on ethical behavior and why it is important not to get too close to wildlife or to feed animals and why trampling of habitats can result from wildlife viewers who are not careful.
- As a long-term strategy, the Department should consider developing one or two flagship wildlife viewing areas in Virginia complete with nature centers and enhanced wildlife viewing opportunities such as glassed-in streams so people can view fish, and nesting platforms with built in video cameras. Several other states have developed these types of sites, notably the Idaho Fish and Game Department and the Missouri Department of Conservation. The Idaho Fish and Game Department's Morrison Knudson Nature Center, located adjacent to its Boise headquarters provides an excellent model. The Shenandoah Valley area should be considered as a site for such a facility because half of the Virginians who took a trip for the primary reason to watch wildlife made that trip to the Shenandoah region.

For Virginians who take a special interest in wildlife around their homes, we recommend that the VDGIF:

- Provide information to homeowners who are interested in watching wildlife around their homes on how to plant native vegetation to attract wildlife as well as other information on a variety of issues focused on wildlife enjoyment around the home.
- Provide information on how to attract, identify and provide for wildlife around their homes—and how not to attract wildlife that causes nuisance problems.
- Provide information on how these residential wildlife viewers can help preserve wildlife populations, how to identify wildlife around their home, how to feed birds and how to provide habitat for wildlife. Direct mail is the best way to provide residential wildlife viewers with information.

**Recommendation 3. The Department should develop a systematic plan for increasing information dissemination to constituents, including making a significant investment in electronic technology to enhance its ability to communicate with, to serve and to retain its constituents.**

Stakeholders who were familiar with the VDGIF were strongly supportive of the agency and its programs. However, too few citizens know anything about the agency – even persons in traditional stakeholder groups. For example, almost 40% of the hunters knew little or nothing about the agency and half of the anglers purchasing fishing licenses did not know where the funds were going. Furthermore, over 63 percent of Virginia citizens believed the agency is funded through taxes. Half the general population did not know which agency is responsible for fish and wildlife management - specific name recognition was extremely low (< 10%). Residents of the most urban regions (Regions 1 & 5) did not know if they were satisfied or dissatisfied with the performance of the agency. This is clearly related to a lack of awareness of the agency and its programs.

Despite low awareness of the agency, all constituent groups expressed high levels of interest in receiving information from the agency. More than half of Virginia citizens were interested in information on wildlife viewing, what to do with injured wildlife, how to deal with nuisance wildlife and enjoying wildlife around the home. The majority of wildlife viewers were interested in information on how they could help preserve wildlife populations, how to identify wildlife around the home, how to feed birds and how to provide habitat for wildlife. Hunters were very interested in biology and management of wildlife and information on access and hunting opportunities. Anglers had interests similar to hunters, with the addition of strong interest in information about clean water. Boaters expressed great interest in maps and charts, information about fishing and safety-related topics.

Much of the information desired by the Department's stakeholders is already available from the agency, from the Virginia Cooperative Extension Service, or from other sources. The agency will need to develop strategies to make people aware of what is available and to develop and deliver desired information that is not already available. An important first step will be to prioritize information needs in a plan that defines strategies for meeting those needs. This plan should (1) recognize the value of department employees located throughout the Commonwealth who can assist in providing information and (2) focus on improving the agency's ability to communicate with constituents electronically. Seventy-eight percent of employees said that information and education was a big part of their jobs. Marketing research consistently has shown that "word of mouth" promotion by satisfied customers and personal contact by empowered employees are the most effective means of conveying the value of an organization's products or services.

There are many reasons why the department should invest to improve its ability to communicate electronically with constituents, but perhaps the most important reason is that 40% or more of every major constituent group indicated that direct mail was the most effective means of providing information to them. Direct mail could be an effective means of providing important information to targeted groups of constituents. Direct mail could also be used to provide reminders to constituents who have not renewed their licenses or boating registrations—

a technique that is used profitably by many businesses and professional organizations. However, direct mailings will not be possible without easy access to electronic mailing lists. Therefore, investments in electronic technology must begin with an automated licensing system. Although the initial investment in such a system would be significant, the long-term benefits should greatly outweigh the costs. Several other states have initiated automated licensing and they should provide excellent opportunities for the VDGIF to learn about and avoid potential problems.

The Virginia Department of Motor Vehicles already has in place a system that allows citizens of the Commonwealth to renew drivers' licenses via the World Wide Web. The VDGIF should be able to do the same with hunting and fishing licenses as well as boat registrations. Although Virginians said purchasing hunting and fishing licenses was quite easy, nearly 25% said they would use a toll-free telephone number to purchase a license if that service was available. The number of Virginians connected to the World Wide Web will continue to increase and it is becoming increasingly important to consumers in every aspect of life. Half of Virginians currently have access to the internet/World Wide Web, up from 28% in 1997 (Virginia Quality of Life Survey 1999, Center for Survey Research). If the agency made licenses available through its Web page, it is likely that a large number of people would use that service and that demand would grow over time. It is possible that the agency could realize significant savings by not having to pay a vendor handling fee on licenses purchased via the World Wide Web.

The agency also should increase its efforts to communicate with constituents via the World Wide Web and other means of electronic communication. Sixteen percent of nonconsumptive users and 14% of boaters indicated that the World Wide Web/internet was the best means of providing them with information—second only to direct mail. Thirteen percent of anglers and 9% of hunters said the World Wide Web/internet was the best way to provide them with information—better than television, radio, license vendors and Virginia Wildlife magazine. Among younger Virginians, the World Wide Web is often the first avenue they use to seek information.

**Recommendation 4. The Department should utilize the HB 38 Capital Fund to address the highest priority items identified by both its internal and external constituents—improving access to lands for recreation and acquiring lands.**

The Capital Fund provides the department with its best chance to demonstrate significant benefits from HB 38 in the areas of highest priority to constituents. Several constituent groups placed land acquisition or improving access to lands for fish and wildlife-associated recreation at the top of their list of priorities for the department. More than 70% of hunters felt the department should provide much more or somewhat more effort on (1) encouraging private landowners to open access to their lands for more hunting use, and (2) acquiring more state-owned lands to increase opportunities to hunt. Several issues related to access and where to hunt topped the list of topics about which hunters wanted information. Nearly half of anglers felt the department should provide much more effort on acquiring more public areas for fishing. Although boaters were generally satisfied with access to waters, boaters in Region 1 expressed significant interest in developing new access areas. Nonconsumptive users most frequently cited nature trails, printed materials, outdoor educational displays, restrooms and viewing facilities as the items that would significantly add to their recreational enjoyment. Employees of the agency

placed high priority on all aspects of land acquisition. Employees also identified maintenance of department-owned facilities as a high priority.

Although \$6 million per year provides significant capital project resources for the department, additional needs for capital investment will continue to exist. In addition to the need for additional access to lands for hunters, anglers and wildlife watchers, the department has a backlog of capital project needs in hatchery maintenance and in maintenance and construction of other facilities. Consequently, department leaders will need to allocate capital resources wisely. The department should clearly identify its priorities for land acquisition, facilities development and facilities maintenance. We recommend that the department maximize the impact of capital funds by (1) using federal matching funds to assist in land acquisitions and facilities development wherever possible, (2) seeking partnership opportunities with nonprofit interest groups willing to donate funds to land acquisition and facilities development projects, and (3) investigating possibilities for creative use of capital funds, such as leasing access rights to private lands in areas of highest need.

We believe that modest investment of capital funds in nature trails, interpretive displays, restrooms and viewing facilities in strategically located wildlife management areas would yield benefits exceeding costs. In addition, this would demonstrate to nontraditional constituents that the agency recognizes the need for greater investment in nonconsumptive wildlife recreation. These investments should be made in every administrative region because few stakeholders travel more than one hour from home to recreate.

**Recommendation 5. The Department should address hunters' desires for increased access to private lands with programs that address landowners' concerns about overabundant deer populations and liability for recreationists on their lands.**

The white-tailed deer is arguably the most important resource managed by the VDGIF. It is the most popular species pursued by hunters and the species most often sought by wildlife viewers. However, deer also cause many problems in areas where they are overabundant. Recreational hunting is the most effective tool for controlling deer populations in most situations and deer hunters provide an important source of revenue for the department. We recommend that the department continue to implement existing programs, and develop new programs, that create opportunities for hunters while addressing the problems caused by deer.

Access to lands for deer hunting was a major issue with hunters. Thirty-five percent of hunters said access to private lands was poor and an additional 31% said access was fair. In addition, 53% of hunters said access to private lands has gotten worse in the last 5 years. Access to private lands is critical for deer hunters because 64% of them hunted mostly on private lands and an additional 22% hunted on both private and public lands (only 13% hunted mostly on public lands). A large percentage of hunters crave information on access for hunting with 72% of hunters expressing interest in getting information on private hunting areas and 73% desiring information on hunting access. Fifty-six percent of hunters said the department should put much more or somewhat more effort into improving and increasing access to private hunting areas.

The goal of the Virginia Deer Management Plan is to manage deer populations at cultural carrying capacity, i.e., the desire and/or tolerance for numbers of deer based on social, economic, political and biological perspectives. In our surveys, 32% of Virginians said the deer population in their counties should be decreased. Sixteen percent of Virginians said that someone in their household had been involved in a deer-vehicle collision during the last two years. Although the solution to crop damage by deer is obvious, it is difficult to achieve because the benefits to landowners of having hunters reduce deer populations may be offset by the costs of dealing with hunters on their land. In addition, landowners have multiple and often conflicting objectives regarding wildlife management on their lands. Landowners who sustain damage and want deer numbers reduced often have neighbors who do not allow hunting and as a result, provide refuges for overabundant deer populations.

Landowners' concerns about liability for hunters and other recreationists on their lands should be addressed if a substantial amount of new lands will be opened. Seventy-five percent of Virginia landowners said that liability is a concern when they consider allowing access to their lands. The Department could reduce this figure significantly by increasing landowner awareness of the recreational use statute (83% of Virginia landowners were totally unaware of it). In order to address landowners' problems with overabundant deer through recreational hunting, the department must overcome reluctance on the part of landowners to deal with the problems associated with hunters. With new resources becoming available to the department through HB 38, the Department should consider developing a program that would assist landowners in dealing with these problems. The department could implement a program that directs hunters looking for a place to hunt to lands of participating landowners who have problems with deer. The landowner could establish limits of when, where and how many hunters, while the department could maintain records of who is authorized to be on the landowner's property and patrol those lands to ensure compliance. It is possible that hunters would even be willing to pay for such a service.

When recreational hunting is not a practical solution to a landowner's deer problem, the agency may issue out-of-season kill permits or issue special hunting permits to the landowner (DCAP program). Kill permits are effective but controversial among both hunters and department employees. The three department programs aimed at managing deer populations on private lands (kill permits, DCAP and DMAP) received the lowest priority ratings from agency employees. These were the only programs to receive mean ratings suggesting the agency should spend less time and money on them than they currently do. Despite employees' reluctance, judicious use of these programs will be critical to maintaining good relationships with landowners. Consequently, we do not recommend reducing resources allocated to these programs. However, the main thrust of the agency's efforts to control deer populations in areas where public safety is not an issue should be to bring hunters together with willing landowners to address the problem.

Many landowners lease the hunting rights to their lands—either for the extra income or simply to avoid the problems of dealing with individual hunters. The department should investigate the feasibility of leasing lands for hunting. As previously discussed, it may be possible to use the HB 38 Capital Fund for this purpose.

## Additional Recommendations

**Recommendation 6: The Department should recognize that education is viewed as important and a priority of all stakeholder groups. Therefore, current education efforts should be maintained and, in some areas, expanded.**

Public support for departmental education programs is strong. Eighty-three percent of the general population indicated it was very important for the Department to provide hunter safety education; 79 percent said that providing boating safety education was very important. Furthermore, almost 70 percent reported that providing wildlife and environmental education was also very important. Our specific recommendations regarding education programs include:

- **Maintain the agency's current high level of performance in providing hunter safety education.**

There is solid evidence that hunter education programs across the nation have helped decrease hunting accidents and fatalities. The momentum of these programs should be maintained and efforts increased in areas where demand is highest. The tenuous nature of hunter recruitment and retention suggests that any increase in the perception that hunting is an inherently dangerous activity will be counterproductive to efforts to maintain or increase the number of persons buying hunting licenses. This is an area where the department could make good use of motivated volunteers to maintain or increase efforts at low cost.

- **Carefully consider any legislation mandating boating education for all operators of motor-powered watercraft, including personal watercraft (jet-skis).**

Sixty-three percent of all boaters indicated they supported instituting a mandatory boating safety course for operators of all motor-powered watercraft. Moreover, 87 percent of all boaters indicated they supported mandatory safety education for jet-skiers (78% strongly). However, boaters were somewhat polarized on the issue of a mandatory boating safety course, with 34% opposed. While a majority of boaters supported mandatory safety education programs (even mandatory licensing requirements for boaters), a significant number of these respondents did not believe they needed an educational program. Therefore, if the Department becomes involved in legislative action to implement a mandatory boating education program, some type of "grandfather" clause, similar to that utilized with hunter safety education, should be considered.

- **Expand wildlife and environmental education programs, particularly in urban/suburban areas, including a program addressing ethical concerns in wildlife viewing.**

Educational programs targeted at urban/suburban audiences will be viewed positively by the Department's nontraditional stakeholders. These programs can be used to educate citizens regarding how to prevent unwanted wildlife interactions and how to manage their properties to attract wildlife in ways that are desired. Moreover, these programs will go a long way toward



increasing the awareness of all citizens regarding the Department and its activities on behalf of wildlife, natural resources, and wildlife-associated recreationists. Seventy-one percent of nontraditional stakeholders indicated they wanted information on ethical conduct in the outdoors for wildlife viewers. Sixty percent of nonresidential wildlife viewers agreed (38% strongly) that a lot of wildlife viewers violate wildlife laws or practice unethical behavior while viewing wildlife. The types of illegal/unethical behaviors expressed as concerns by respondents reflect a high degree of sophistication regarding potential impacts (e.g., getting too close to wildlife, feeding animals, trampling habitats, interrupting animals' normal behavior, etc.).

**Recommendation 7: The Department should expand its efforts in developing boating education outreach programs that decrease conflicts between jet skiers and other outdoor recreationists.**

The VDGIF faces only one major conflict among user groups: jet skiers are viewed as a major problem for both anglers and boaters. Hunters, anglers, boaters and wildlife viewers were all asked directly if they experienced any interference from other recreationists that took away from their enjoyment while pursuing their sport. Overall, there were no major user conflicts among or between any of the user groups with the exception of jet skiers conflicts with both anglers and boaters.

The highest source of interference among hunters were other hunters, and only 6% of hunters said that interference by other hunters took away from their hunting enjoyment (85% of hunters said they did not experience any interference from others while hunting). The highest source of interference among wildlife viewers were other wildlife viewers with only 3% of wildlife viewers saying interference by other wildlife viewers took away from their wildlife watching enjoyment (80% of wildlife viewers said they did not experience any interference from others while viewing). However, 25% of anglers and an incredible 43% of boaters said they experienced interference from jet skiers. To a lesser extent, some boaters (16%) experienced interference from other boaters. The high interference rates by jet skiers is the most likely reason a majority of Virginia boaters strongly supported instituting a mandatory boating safety course that jet skiers must take before operating a boat in Virginia. Seventy-eight percent of boaters strongly supported and 9% somewhat supported a mandatory course for jet skiers. Only 11% of boaters opposed such a course. Jet ski users also demonstrated overwhelming support for a mandatory course, with 72% strongly supporting and 11% somewhat support supporting the idea. Only 16% of jet skiers opposed such a course.

Through its affiliation with the National Association of State Boating Law Administrators (NASBLA) and the Southern States Boating Law Administrators Association (SSBLAA), the department should continue to focus efforts on encouraging the personal watercraft industry to move to the forefront with educational initiatives. Working with the motorcycle industry was an important first step in dealing with the environmental impacts and operational safety of 3-wheel off-road vehicles in the 1980s. In 1988, the motorcycle industry, by dissent decree, agreed to stop manufacturing 3-wheel off-road vehicles (which has been shown to be unsafe by the Consumer Product Safety Commission) and to begin offering and promoting "user education and training" aimed at minimizing the environmental impacts of ORV use. This training was designed to encourage proper user behavior that would engender a better

image among ORV owners by decreasing environmental impacts and user conflicts. It appears that there is enough concern over personal watercraft in Virginia today to continue encouraging the industry to actively promote similar responsible user behavior.

Given the substantial number of new boating laws regarding personal watercraft usage that became effective in January 1999, the department should continually assess the effectiveness of these restrictions on jet ski safety and user conflict. Should additional restrictions appear to be warranted, the department should review the actions in other states to determine the best approach to minimize user conflicts between jet ski operators and other boaters, anglers, etc.

**Recommendation 8. Wildlife viewing programs (including feeding and photography) should not be confused with, nor come under the purview of nongame wildlife management programs. The VDGIF should separate programs that manage nongame wildlife from programs that provide nonconsumptive wildlife-related recreational opportunities. Additionally, the term nonconsumptive wildlife use should be dropped altogether as the term implies these activities do not impact wildlife, when in fact they do.**

The term "nonconsumptive wildlife-related recreation" has been used within the fish and wildlife profession to denote such wildlife-related activities as wildlife viewing, wildlife photography and wildlife feeding. The term was initially coined to differentiate these wildlife-related activities with the "consumptive" uses of wildlife, such as hunting, fishing and trapping. The term "nongame" wildlife is used to denote wildlife species that are not hunted, fished or trapped, in contrast to "game," species that are.

Because both nongame and nonconsumptive programs are relatively new to state fish and wildlife agencies, nonconsumptive programs have often been placed under the purview of nongame wildlife programs. However, nonconsumptive programs are not equivalent to nongame programs and the VDGIF should treat these programmatic areas separately. Virginians who take trips for the primary purpose of watching wildlife do so to view game species as often as nongame species. In fact, the top species Virginians take trips to view are game species: white-tailed deer (69%) and ducks and geese (62%). The most popular nongame wildlife species for wildlife viewing were hawks, owls and eagles, with 60% of wildlife viewing trip takers taking a trip to view these species. Hawks, owls and eagles topped the list of animals people would be interested in taking a trip to view (81%), followed closely by black bear (74%), another game species. White-tailed deer (58%) and fish (both game and nongame, 57%) ranked above such nongame animals as songbirds, shorebirds, butterflies and reptiles and amphibians as animals people would be interested in taking trips to view.

If wildlife viewing programs are placed entirely under the purview of nongame programs, there may be a tendency for the program to emphasize nongame wildlife viewing and this emphasis would not meet the recreational needs of Virginians. Wildlife viewing programs should manage for game as well as nongame wildlife viewing opportunities and these opportunities should be managed by both game and nongame specialists.

As the VDGIF moves toward expanding wildlife viewing programs as recommended in this report, it will also be important to keep in mind that “nonconsumptive” is not always nonconsumptive. The term implies that the activities do not impact wildlife or wildlife habitat. However, research shows that many wildlife viewing, photographing and feeding activities can have negative impacts on wildlife. Birders can trample important habitat and photographers can disturb wildlife for a good shot. As the VDGIF moves into more fully managing for these activities we recommend dropping the term nonconsumptive altogether. We also recommend developing, publishing and communicating guidelines to minimize the impacts of wildlife viewing, wildlife photography and the feeding of wildlife (see Recommendation 6).

**Recommendation 9: Programmatic efforts to address the needs of suburban/urban residents must be undertaken and these efforts must be new, innovative and responsive to a growing, non-traditional public.**

Urban/suburban residents were the least knowledgeable about the agency and what it does. Although many urban/suburban residents are traditional constituents who hunt and fish, many more were interested in residential wildlife viewing, dealing with nuisance wildlife, and what to do with injured wildlife (rehabilitation). Even if the Department does not have the resources to address some of these issues directly, the Department may be perceived to be responsible for them, or at least responsible for providing guidance regarding where to find information and/or services related to these issues. In fact, it is desirable for Virginians to associate any aspect of wildlife with the Department—even if the Department plays a coordination role rather than dealing directly with issues such as nuisance animals and injured wildlife.

As the Department develops programs aimed at urban/suburban residents, some special considerations should be kept in mind. First, urban/suburban residents should not be viewed as a homogenous group of nontraditional wildlife users. Sportsmen and women living in these areas will benefit greatly from agency investments in improvements in recreational opportunities on departmental lands and in programs designed to increase access to private lands (see Recommendation 5). Second, suburban/urban residents are not found exclusively in Northern Virginia and the Tidewater areas. Growing numbers of nontraditional constituents will be found in and around Richmond, Roanoke, Lynchburg, and other towns and cities. However, Northern Virginia residents appear to be less knowledgeable about the Department than residents of other parts of the Commonwealth. Finally, current regional boundaries mask the needs of urban/suburban residents. That is, much of the area of Regions 1 and 5 (those regions identified with urban areas in NoVA and Tidewater) is rural. Our specific recommendations include:

- **Develop a statewide public access program for hunting and fishing that facilitates access to land and water for urban/suburban residents who have lost their friendship and kinship networks in rural areas.**

Insufficient access to private and public lands and water is a primary reason for reduction, if not cessation of hunting and fishing participation among urban/suburban residents (see Recommendation 5).

- **Work with local park systems to provide programs of instruction on residential and/or urban wildlife viewing.**

Most urban areas have well-established park systems replete with nature centers and other facilities conducive to educational programs on urban wildlife. People who come to these parks are, by and large, interested in wildlife, nature and the outdoors. The Department can be a valuable, collaborative partner for these agencies by expanding their capabilities to provide wildlife-associated recreation and education programming to their already well-established constituencies.

- **Expand the department's current wildlife and environmental education efforts by working with local school systems to provide additional, innovative programs of instruction on wildlife and natural resources management.**

Our studies suggest that there is a significant need and interest in educating and informing youth regarding the Department and its activities. Since environmental education is being taught in most public schools, and many schools are interested, if not active, in developing school yard habitats as part of their science education curricula, the Department should increase its efforts to provide materials and expertise for use in public schools (see Recommendation 6).

- **The Department should continue to implement the highest priority objective of the statewide deer management plan, development of a program to deal with urban and suburban deer issues.**

While the white-tailed deer is the most popular species pursued by hunters and the most popular species viewed by wildlife watchers, it is also a species that causes many problems in areas where deer are overabundant. Wherever possible, the Department should use recreational hunting to manage deer populations. Hunting provides valuable recreation and food as well as being the most effective means of controlling deer populations. However, deer are quite abundant in many suburban areas where hunting is not a viable management option. Almost one-third (32%) of Virginians felt the deer population needed to be reduced in their counties and that percentage was even higher in areas like Fairfax County, where hunting has limited utility for controlling deer populations.

The Department has already begun to implement an urban deer management program. We encourage the Department to treat this as a high priority item and to recognize that deer management strategies in urban/suburban areas, unlike those in rural areas, may not always provide substantial hunting recreation opportunities.

- **The Department should take a lead role in providing information on and coordinating responses to nuisance wildlife and rehabilitation of injured wildlife.**

We understand that Department involvement with nuisance animal issues and wildlife rehabilitation may not be readily accepted by employees. However, the general population survey identified a substantial number of nuisance animal problems in Virginia and the employee scoping sessions identified nuisance animals as an issue to be dealt with. More than a third

(34%) of Virginians said they had problems with wild animals within the past two years and there were even higher numbers in Region 5 (40%) and Region 2 (37%). Although negativistic attitudes toward wildlife (concern about wildlife interfering with daily activities) were low among Virginians, they could become an important consideration in the future. An astounding 55% of the Commonwealth's residents said they were interested in information on dealing with nuisance animals. The second highest ranked wildlife information need expressed by Virginians was what to do with injured wildlife.

As a comprehensive wildlife agency, the Department should take the lead in dealing with nuisance animal and wildlife rehabilitation issues. Although Virginians clearly care about the welfare of wildlife populations, these issues related to individual animals are also important to Virginians. As the wildlife agency for Virginia, the Department must become involved with these issues. The Department could become involved with nuisance animals and wildlife rehabilitation in a coordinating role or by developing cooperative agreements with other groups and even for-profit organizations. The important point is that the Department needs to deal with these issues now with a coordinated and systematic plan. They will become even more pronounced in the future and the sooner the VDGIF becomes involved, the more latitude it will have in decision making and guiding the outcome of programmatic emphasis in these areas. The Department should look at these issues as opportunities, and not as threats. Many times opportunities do not present themselves in the way we think they might. Although there are certainly many opportunities for the Department to become involved with nontraditional audiences in Virginia by providing important amenities such as nongame programs and wildlife viewing programs, Virginians have identified and expressed very real and immediate needs regarding conflicts with nuisance animals and wildlife rehabilitation issues. Dealing with these issues and helping Virginians deal with these issues are important steps in becoming responsive to the various needs of many Virginians and becoming a comprehensive wildlife agency.

**Recommendation 10: The Department should develop a long-term plan to address needs for additional funding.**

Although we were asked not to consider the issue of additional funding for the agency, it is clear that constituents are strongly supportive of the agency and desire more services. We found no indication from external constituents that they felt the agency should do less of anything it currently does. All external constituent groups were clearly supportive of expansion of the agency's mission. Employees rated only three programs as needing fewer resources than are currently allocated; all three were deer management programs on private lands that we feel are too important for addressing landowner concerns and hunter access concerns to be cut. All of our recommendations involve increased efforts that would require additional resources. We were asked to consider where the agency could reduce its efforts. Clearly, the agency's constituents wish to do just the opposite.

If the Conservation and Reinvestment Act (CARA) passes the Congress later this year, the Department will have several million dollars in new funding that can be used to address Department priorities. Although initially designed to address nongame, wildlife viewing and conservation education programs, the final version of CARA may allow substantial freedom in

how the funds are used. Regardless of the bill's final language, a substantial portion of the Department's CARA funding should be used to supplement the current funds for those programs.

In addition to CARA, the Department should be looking ahead to the potential of increasing the cap on HB 38 funding. While participation in wildlife-associated recreation declined slightly between the 1991 and 1996 National Surveys, expenditures rose dramatically (45% for hunters, 37% for anglers and 21% for wildlife viewers). If those trends continue into the next National Survey (2001), funding received under HB 38 could be restricted by the \$13 million dollar cap imposed by the General Assembly. Strong public support for the agency and its programs could be translated into an increase in the spending cap—if the agency demonstrates that existing HB 38 funds have produced significant benefits for constituents (see Recommendation 2). Failure to demonstrate benefits from HB 38 funding would increase the difficulty in securing additional funding in the future. As the agency takes proactive steps in accordance with our first and highest priority recommendation to expand beyond its traditional game management role and become a comprehensive fish and wildlife agency, awareness of the department's activities and support for its programs should result in a constituency that would also be supportive of an increase in the spending cap. Support for other revenue initiatives could also result from this increased awareness about agency programs and activities.