



## **Economic Impact Analysis Virginia Department of Planning and Budget**

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### **9 VAC 25-210 – Virginia Water Protection Permit Regulation Department of Environmental Quality February 2, 2001**

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The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 9-6.14:7.1.G of the Administrative Process Act and Executive Order Number 25 (98). Section 9-6.14:7.1.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

### **Summary of the Proposed Regulation**

The proposed regulations restore the regulatory jurisdiction of the Department of Environmental Quality (DEQ) in issuing water protection permits over specific areas known as isolated wetlands and over a specific type of excavation activity known as Tulloch ditching.<sup>1</sup> In addition, the proposed regulations will shorten the time allowed for DEQ to issue a permit, expand the maximum time allowed for a permit by ten years, and allow an applicant to make more changes that qualify as a minor modification to an existing permit.

### **Estimated Economic Impact**

Wetlands provide a number of important benefits. Their benefits include providing flood control, improving water quality, and providing wildlife habitat. They are particularly suitable for recreational activities such as fishing, hiking, biking, bird watching, and duck hunting. Many

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<sup>1</sup> Tulloch ditching is a method used to actively drain wetlands without adding fill to the wetland.

of these benefits are not confined to the owner of the wetlands but rather accrue to other land owners and the surrounding community. Because the owners of the wetlands cannot earn income for the value of many of these services, private owners of wetlands may place a private value on wetlands that is much lower than the total contribution of the wetlands to the economy. Consequently, certain activities that have the potential to alter the natural properties of wetlands are generally subject to regulations nationwide. These activities may include excavating, draining, and filling.

### **Isolated Wetlands and Tulloch Ditching:**

In Virginia, DEQ was authorized to require permits for fill in isolated wetlands prior to 1997 and for Tulloch ditching prior to 1998. DEQ's authorization to require permits was dependent upon the U.S. Army Corps of Engineers requiring a Clean Water Act permit. The Army Corps' jurisdiction over activities in isolated wetlands and Tulloch ditching in wetlands was legally challenged. The court decisions removed activities affecting isolated wetlands and Tulloch ditching from the Army Corps' jurisdiction in 1997 and 1998, respectively.<sup>2</sup> Consequently, DEQ lost its legal authority to require permits for these activities. Without proper legal authority, DEQ has not been able to require permits for activities in isolated wetlands since 1997, and for Tulloch ditching of wetlands since 1998. In 2000, the General Assembly passed legislation authorizing DEQ to issue permits for activities in isolated wetlands and for all forms of excavation in wetlands, including Tulloch ditching, independently from Army Corps' Clean Water Act Permits. The proposed changes incorporate these statutory changes into regulations.

The permit requirements introduce additional costs to individuals who want to alter the physical and functional properties of wetlands, but allow them to do so if they are willing to incur these costs. There are at least three types of additional costs a landowner or developer must incur if they wish to alter or degrade existing wetland acreage and functions through excavating, draining, filling, and performing other type of activities.

First, DEQ will have to make sure that for each application "no net loss of wetland acreage and function" takes place. This is a statutory requirement. This requirement amounts to compensatory development of comparable wetlands by the permit applicant. Wetland

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<sup>2</sup> These court decisions are known as the Wilson decision and the Tulloch decision.

compensation can take the form of wetland creation or restoration on-site or off-site by the applicant, purchase of credits in a wetland mitigation bank, or monetary contribution to an in-lieu fund dedicated to no net loss of wetland acreage or function. Based on the Army Corps' guidance, DEQ determines the mitigation needed and the amount of credits in terms of acres needed to achieve the mitigation. The cost of developing a compensatory wetland may vary depending on the real estate prices in the area, the purpose of development, the prices set by the wetland bank, and many other factors. According to DEQ, the cost of an acre of compensatory wetland may vary between \$25,000 and \$125,000, depending on the type of mitigation chosen.

Second, an application package for the work that will be performed on the wetland must be provided by the applicant to obtain a permit. An application package includes a delineation of the wetland on the property, maps and drawings of the property and the permitted activity, information on the property owner, the purpose of the project, a time line for the project, information on how impacts to wetlands have been avoided and minimized to the maximum extent practicable, and the type of compensatory mitigation being proposed. It usually costs from \$500 to \$50,000 to prepare an application package for the permit, depending on the complexity of the project. These costs are borne by the applicant.

Third, the applicant is required to pay an application fee. The application fee varies from \$200 to \$3,000, depending on the size of the wetland project. DEQ believes that the application fee covers only about 10% of the administrative costs.

A permit applicant must incur all of the three types of costs. Given the individual estimates of the associated costs, average total cost of developing an acre of compensatory wetland is expected to be between \$25,700 and \$178,000 for an applicant. Also, DEQ will have to incur additional administrative costs because of the increase in the number of permit applications due to the proposed changes. DEQ has received the funding for three additional full-time positions in fiscal year 2001, and for seven more additional full-time positions in fiscal year 2002 to administer the proposed regulations.

Wetlands may have many alternative uses including agriculture, forestry, fishery, and real estate development. Real estate development is the leading alternative use of isolated wetlands

in the Commonwealth.<sup>3</sup> Some isolated wetlands in the Commonwealth are suitable for real estate development and are attractive to real estate developers. Since 1997, approximately 50 cases involving a total of 97 acres of isolated wetlands, where an activity took place to alter the natural wetland properties, would have been subject to permit requirements if DEQ had the legal authority. Much of this development may not have occurred if developers were required to incur the costs associated with obtaining permits. Also, the proposed regulation is likely to reduce potential development activities on isolated wetlands in the future.

Similarly, some individuals have had additional incentives to drain wetlands by Tulloch ditching in the absence of regulatory requirements since 1998. As mentioned, DEQ did not have authority to require a permit for this particular type of ditching. Once a wetland is drained by this method, then it is not considered a “wetland” and consequently not required to have a permit for any alteration activity such as excavating, draining, and filling. Thus, the Tulloch ditching method was providing a way to convert wetlands into real estate development areas without being subject to regulations. DEQ estimates that about 10 cases involving 2,000 acres of wetlands have been subject to drainage attempts through the Tulloch ditching method since 1998. Complete conversion of wetlands through drainage takes several years.<sup>4</sup> DEQ believes that none of these attempts have been successful so far. Thus, the proposed regulation is likely to prevent a loss of up to 2,000 acres of wetland through the Tulloch ditching method in the Commonwealth. The proposed regulation is also likely to prevent development of more wetlands by reducing the potential Tulloch ditching activities in the future.

In short, reinstating isolated wetlands and Tulloch ditching under permit regulations administered by DEQ is likely to preserve approximately 2,097 net acres of wetlands that otherwise would be lost or damaged over about every two to three-year period.<sup>5 6</sup> However, this does not mean that no wetlands could be developed for real estate purposes and the real estate developers are left without options. Individuals who want to alter the physical and functional properties of wetlands can do so if they are willing to make sure that “no net loss of wetland acreage and function” takes place.

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<sup>3</sup> Source: DEQ

<sup>4</sup> Source: DEQ

<sup>5</sup> The number of acres saved may increase over time, as the demand for wetlands is likely to increase in the future.

<sup>6</sup> Most of the 2,097 acres of wetlands would have been lost rather than being damaged because the purpose of Tulloch ditching is to drain and alter wetlands.

*Demand for Wetlands as Private Good:*

The proposed regulations will increase the costs incurred in developing areas designated as wetlands. This is because, with the proposed changes, the individuals exercising Tulloch ditching on wetlands or other activities to develop isolated wetlands will be required to have a permit and thus, will have to develop compensatory wetlands, or will have to execute their projects with consideration to preserve the existing wetlands. On the other hand, since compensatory wetlands will have to be developed, wetland development businesses are likely to experience revenue increases.

Under the proposed regulations, a permit will guarantee that “no net loss of wetland acreage and function” takes place. Although there will be no change in the acreage of wetlands, there will be a number of economic impacts. The largest economic impact is likely to be on the owners of wetlands and real estate developers. Before analyzing the effects on the owners and the developers specifically, it should be kept in mind that several years ago similar permit requirements were in effect and the developers had to incur all costs associated with compensatory wetlands, application package, and permit application. Thus, the associated costs are not completely new but rather reintroduce costs that existed several years ago.

The experience during the previous several years provides a unique opportunity to assess the impact of proposed permit requirements by opening a window in time where a permit was unnecessary. Past experience indicates that in the range of 30 isolated wetland cases involving about 60 acres of wetlands would not have taken place had a permit been required. It is also expected that about five of the Tulloch ditching cases involving approximately 1,000 acres of wetlands would not have taken place had a permit been required. The reasons that individuals would not have attempted to alter approximately 1,060 acres of wetlands if the proposed regulations were in effect are the costs associated with compensatory wetlands, the application package, and the application fee. The three types of costs add to the costs of developing wetland for real estate purposes. The higher costs in turn reduce the expected profits from developing an acre of wetland and thus, decrease the quantity of wetlands demanded that are suitable for development.

A decrease in the quantity of wetlands demanded for development will result in less wetland being developed for real estate purposes. Although the costs associated with the permit

will affect the quantity of wetlands demanded for real estate purposes, that does not mean that the increased burden of higher development costs will be borne only by demanders. In fact, the total burden will be borne by both the demanders (developers) and the suppliers (wetland owners) of wetlands suitable for development.<sup>7</sup> After the proposed changes go in effect, developers are likely to incur higher costs because they will not only pay the wetland owner for the property, but also incur the permit costs. Thus, developers will bear a share of the burden. The wetland owners are likely to end up receiving a lower price relative to the previous price because of permit costs. Thus, the wetland owners will similarly bear a share of the burden. There will also be a loss of welfare experienced by developers and the wetland owners because of decreased volume of wetland trade. The wetland trade above a certain number of acres will not take place and this will prevent buyers and sellers from realizing some of the gains from trade that exist in the absence of the proposed regulations. However, the total burden on the developers and the wetland owners may be mitigated largely because of other alternatives available to developers.

It is likely that the developers will substitute non-wetland sites for real estate development to mitigate the burden if they cannot develop wetlands. In other words, there will be some spillover effects of the proposed regulation from the wetland market to the market for other available areas that are not designated as wetlands. Depending on the degree and availability of substitution, the total burden of the proposed regulation will be reduced. It is reasonable to assume that the substitution of other areas for wetlands is possible and relatively easy in many cases. Under this assumption, the developers will likely demand wetlands for development purposes only in the relatively few cases where the value of the particular site is greater than the cost of obtaining a permit. Thus, the net burden of the proposed regulations may be small due to the high degree of substitutability of other available land for wetlands and the small number of cases where a wetland is desired to be developed in the presence of higher costs. In short, the relevant costs of the proposed regulation is the net burden imposed on the developers and the wetland owners which takes into account potential spillover effects between two different markets. For a given acre of wetland left undeveloped due to this regulation, the net burden on the developers and the wetland owners who were discouraged to develop wetlands

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<sup>7</sup> A wetland owner who wants to develop a wetland by himself can be considered as a demander as well.

is expected to be significantly less than the total costs associated with compensatory wetlands, the application package, and the application fee because of potential substitution of other areas for wetlands. However, an accurate estimate of the size of the burden cannot be provided.

Finally, in cases where a wetland is still desired to be developed even in the presence of the additional costs, the losses of demanders and suppliers will finance the development of compensatory wetlands and produce benefits to the society by achieving the statutory “no net loss of wetland acreage and function” requirement.

*Social Demand for Wetlands:*

Wetlands are different from private goods such as cars, televisions, or tomatoes. Many of the services provided by wetlands are public goods. These services include providing flood control, improving water quality, providing wildlife habitat, and recreational opportunities. Virtually, every individual can consume a public good and it is often impossible or too costly to exclude others from consuming it. For example, it is not feasible or it is too costly to exclude some individuals from enjoying water quality improvements provided by wetlands. The benefits provided to an individual by flood control, or better water quality does not change the benefit of the same wetland services to another individual. Because the consumption of wetland services by one person does not diminish the value of services to other people and many people can benefit from them, the total economic value of wetlands is higher than an individual owner’s willingness to pay for wetlands. Thus, if left to the free market, the total prevailing wetland acreage in the Commonwealth would have been lower than what society as a whole desires. The public good characteristic of wetland services is the primary justification for government intervention in the wetland market.

The proposed regulation will introduce a net burden to real estate developers and the wetland owners as discussed. Also, DEQ will incur additional administrative costs. For the proposed regulation to produce net economic benefits to the society, the value attached to the preserved wetlands by society must exceed the net burden to the developers and the wetland owners plus the administrative costs incurred by DEQ. The value attached to an acre of wetland by the society in the Commonwealth is not known. There exist many studies providing an estimate for the value of an acre of wetland. The estimates provided by these studies vary

Wetland Function Valued	Number of Studies	Median	Mean	Range of Means
General-nonusers	12	\$32,903	\$83,159	\$115 – \$347,548
General-users	6	\$623	\$2,512	\$105 – \$9,859
Fishing-users	7	\$362	\$6,571	\$95 – \$28,845
Hunting-users	11	\$1,031	\$1,019	\$18 – \$3,101
Recreation-users	8	\$244	\$1,139	\$91 – \$4,287
Ecological functions	17	\$2,428	\$32,149	\$1 – \$200,994
Amenity and cultural	4	\$448	\$2,722	\$83 – \$9,910

Source: [1]

greatly due to methodological differences they employ, due to the geographic and demographic factors where wetlands are located, due to specific services provided by wetlands, and due to many other factors. Table 1 provides a summary of the findings in the wetland valuation literature.

It is worth mentioning that all of the functions for which a value estimated in Table 1 are nonmarketed goods. The values of marketed goods produced by wetlands such as the value of fish or the value of fur bearing animals are irrelevant since the wetland owners can capture the value of these goods from others who benefit from them. On the other hand, the wetland owner cannot capture the value of nonmarketed goods. Their benefits accrue to the society as a whole. In addition, to the extent that general, fishing, hunting, and recreational users can be excluded from wetlands, a respective reduction to the social (as opposed to private) value of wetlands should be applied.

It is obvious from the table that values of general, fishing, hunting, recreational, ecological, amenity and cultural functions of wetlands vary significantly. For example, estimated economic values for the ecological functions alone range from \$1 to \$200,994. This



wide range reflects great uncertainty although the mean and median estimates clearly indicate that, generally, the ecological functions of wetlands provide a significant economic benefit. It is interesting to note that, a higher value is estimated for general functions of wetlands consumed by nonusers than by users. This is because nonusers outnumber the users. The fact that wetlands in the Commonwealth may or may not have one or more of these functions further complicates the matter.

In conclusion, for the proposed regulation to produce net economic benefits to the society, the value attached to the preserved wetlands by the society must exceed the net burden to the developers and the wetland owners plus the administrative costs incurred by DEQ. However, neither the value attached to the wetlands by Virginians, nor the size of the net burden placed on the developers and the wetland owners is known with enough certainty to allow DPB to determine whether the proposed regulations would produce net benefits or costs to the Commonwealth.

#### **Other Changes:**

Additionally, there are statutory changes to time allowed for DEQ to issue a Clean Water Act (CWA) permit when a complete application package is received. Previously, DEQ was required by the CWA to make a decision in one year from the date a complete permit application is received. The proposed changes incorporate statutory mandates to reduce the allowed time to 120 days. According to DEQ, up to 100 permit applicants will be affected by this change annually. These permit applicants will benefit from this regulation by securing their permits in a shorter time frame. With the increasing staffing at DEQ, 120 days is expected to be sufficient to conduct a proper evaluation of a permit application. Thus, this proposed change is expected to provide net benefits to the Commonwealth.

Moreover, the proposed regulations will expand the maximum time allowed for a permit by ten years. The length of a particular project determines the length of the permit. Currently, permits can be issued up to five years. If a project is not finished within five years, the permit holder is required to reapply. The proposed regulations increase the maximum time a permit can be valid to 15 years. This change is expected to reduce the costs incurred by permit applicants whose projects cannot be finished within five years. These permit holders will not have to incur costs associated with reapplication for a permit. These costs include project design costs and

permit fees. Also, the administrative costs of DEQ associated with evaluating reapplication of permits are expected to decrease. Thus, this proposed change may be beneficial to the permit applicants and DEQ.

Finally, the proposed regulations broaden the definition of minor modifications and narrow the definition of major modifications to a permit. After being issued, a permit can be modified. Minor modifications to a permit can be made without any additional costs. Major modifications, however, may cost the applicant up to \$2,000 in fees paid to DEQ. In addition, the applicant may incur consultant fees for these modifications. The proposed changes redefine some of the major modifications into minor modifications category. Thus, it is expected that the number of minor modification requests will increase because of categorical changes. According to DEQ, these categorical changes will not affect whether a proposed change to the permit will be approved or not. Because of these changes, permit holders will no longer be required to pay fees for some of the modifications. The proposed regulations are expected to benefit permit holders who want to make a minor change which previously would have been considered to be a major change. On the other hand, DEQ will not receive fees from these modifications. It is expected that 10 of 20 major modifications approved annually by DEQ will now be considered as minor modification. DEQ expects to receive about \$13,000 less in fees from major modifications. At the same time, about 10 permit holders will not have to incur these costs and benefit from this change.

## **Businesses and Entities Affected**

Initially, the proposed regulations are expected to affect wetland owners and real estate developers involved in 60 cases. Thereafter, about 35 cases are expected to be affected over every two or three year period. In addition to that, about 100 permit applications will be affected from the changes to time allowed to issue a permit annually. Finally, about 10 permit holders will be affected by changes to the definition of minor modification annually.

The proposed regulations are likely to affect the landowners whose property can be an alternative to wetlands suitable for real estate development. Moreover, the proposed regulations are expected to produce benefits to the land owners whose property is adjacent to the wetlands by providing flood control, water quality, and more aesthetic view to them. Also, any wetlands

that provide fishery related services, enhance business values where fishery services are an important component of the business.

### **Localities Particularly Affected**

The proposed regulations apply throughout the Commonwealth. However, geographic areas where wetlands are densely distributed are likely to be affected in particular. Wetlands are known to be highly concentrated in the coastal plain area located east of interstate I-95.

### **Projected Impact on Employment**

DEQ already hired three full-time employees and will hire seven more to administer the proposed regulations. The real estate developers are likely to develop fewer wetlands for real estate purposes. But, there will be a positive impact on the demand for other areas that are not designated as wetlands and the compensatory wetland development industry will experience an increased business volume. The combined effect of these industries on employment is unclear.

### **Effects on the Use and Value of Private Property**

The proposed regulations will make any alteration activity on isolated wetlands or the Tulloch ditching method used to excavate wetlands subject to permit requirements. These changes will limit the alternative uses of wetlands, and may diminish the development value of wetlands affected by these changes. Additionally, the proposed regulations are likely to increase the value of property that can be an alternative to wetlands suitable for real estate development. Finally, the proposed regulations are likely to have a positive impact on the value of property adjacent to affected wetlands since these areas will experience better flood control, better water quality, and better aesthetic view.

**References:**

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