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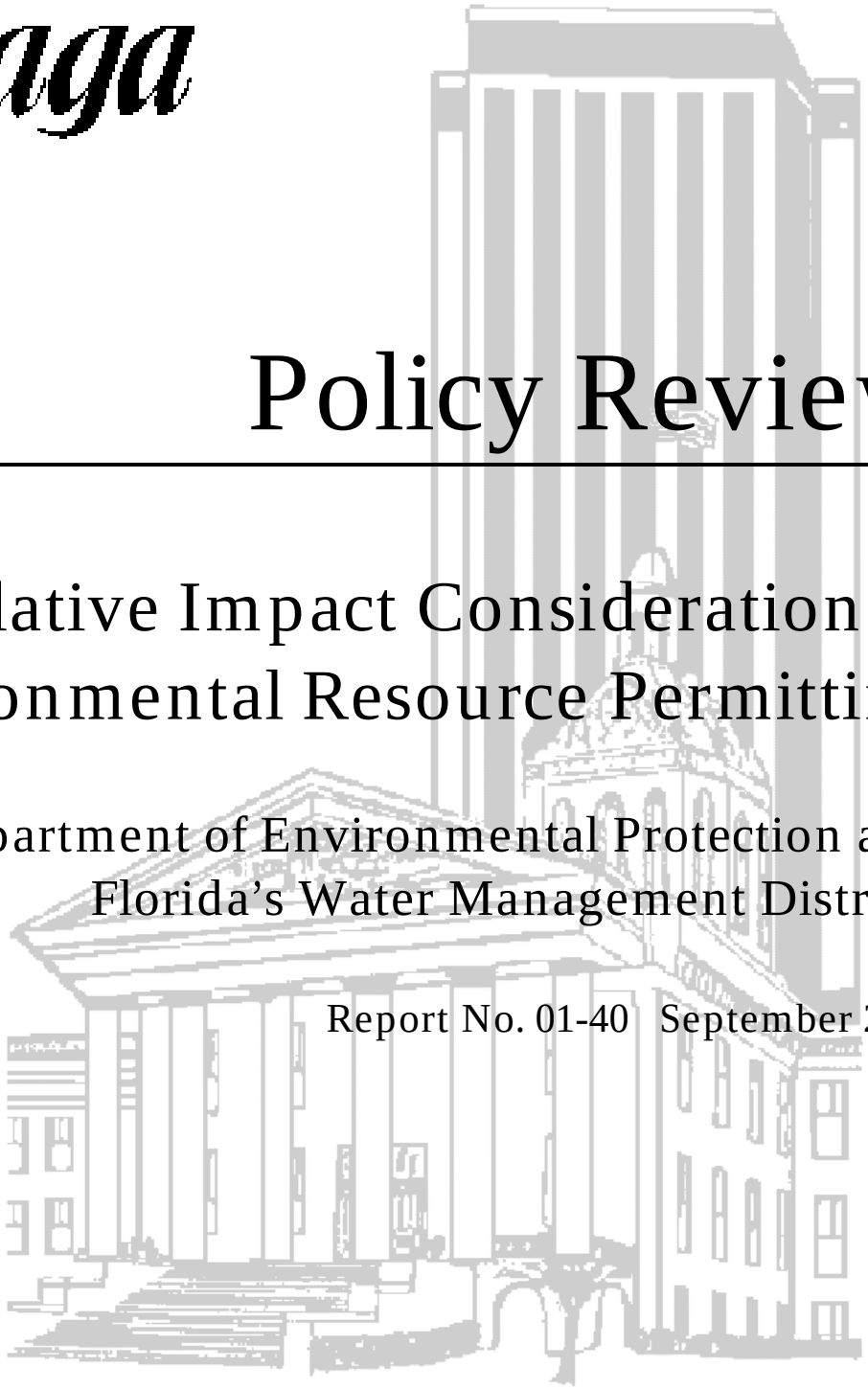
Policy Review

Cumulative Impact Consideration in Environmental Resource Permitting

Department of Environmental Protection and Florida's Water Management Districts

Report No. 01-40 September 2001



Office of Program Policy Analysis and Government Accountability

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The Florida Legislature

OFFICE OF PROGRAM POLICY ANALYSIS AND GOVERNMENT ACCOUNTABILITY

John W. Turcotte, Director

September 2001

The President of the Senate,
the Speaker of the House of Representatives,
and the Joint Legislative Auditing Committee

Florida Statutes directed OPPAGA to review the Cumulative Impact Consideration under the Environmental Resource Permitting Program. The results of this review are presented to you in this report. This review was conducted by Alex Regalado, Michael Garner, and Kevin Matthews under the supervision of Larry Novey.

We wish to express our appreciation to the staff of the Department of Environmental Protection and Florida's water management districts for their assistance.

Sincerely,

John W. Turcotte
Director

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Executive Summary

Cumulative Impact Consideration in Environmental Permitting

Purpose

In response to a recommendation in a March 2000 OPPAGA report on wetland mitigation, the Legislature directed OPPAGA to study the cumulative impact consideration in issuing an Environmental Resource Permit. In deciding whether to issue an Environmental Resource Permit, the Department of Environmental Protection (department hereinafter) and the water management districts are required to consider the cumulative impacts of an activity on surface waters and wetlands within a drainage basin. As required by law, our review addressed the justification for the cumulative impact consideration; whether a practicable, consistent, and equitable methodology for considering cumulative impacts in environmental permitting could be developed; and whether changes could be made in the current process that would provide greater clarity and certainty in applying the cumulative impact consideration.

Background

Florida's environmental policy recognizes that problems often result from the accumulation of many actions over time, rather than from one specific action. Such problems, referred to as cumulative impacts, pose a threat to Florida's natural environment, including its surface waters and wetlands. One of Florida's major means of protecting its surface waters and wetlands is the Environmental Resource Permitting Program. This program regulates activities that alter surface water flows, contribute to water pollution, and affect wetlands. The department and four of the five water management districts jointly administer the program.

An Environmental Resource Permit is required before starting construction for an activity that could affect wetlands, alter surface water flows, or contribute to water pollution. An individual seeking a permit must file an application with the department or appropriate water management district. The applicant must provide reasonable assurance that the proposed activity will not violate water quality standards, adversely impact water resources, or the functions provided to fish and wildlife by wetlands and other surface waters.

Florida law also requires that the department and water management districts consider cumulative impacts to surface waters and wetlands within a drainage basin in deciding whether to grant an Environmental Resource Permit. Permitting rules require applicants to provide reasonable assurance that the proposed activity will not cause an unacceptable cumulative impact within the same basin that the activity is located. An applicant can take mitigating actions to offset the adverse impacts of the proposed development by creating, restoring, enhancing, or preserving wetlands.

Cumulative impacts are considered unacceptable when the proposed activity, in addition to past, present, and anticipated future impacts of regulated activities, would violate water quality standards or cause significant adverse effects on wetland functions or surface waters in the basin. If a permit reviewer determines that the project will have unacceptable cumulative impacts, they should deny the permit application. Recent legislation clarified the cumulative impact consideration stating that if the applicant proposes mitigation that offsets the adverse effects within the affected drainage basin, then the consideration is met.

Findings

We concluded that a state policy that considers the cumulative impact of development is conceptually justified because Florida's surface waters and wetlands have been and continue to be degraded or lost. To illustrate, from 1780 to 1980, Florida lost 9.3 million acres or 46% of estimated wetlands acreage. Loss and degradation of Florida's wetlands and surface waters and their associated functions contribute to problems, such as flooding, poor water quality, and habitat loss. For example, the department's 2000 Florida Water Quality Assessment indicates 47% of lake areas, 31% of river miles, and 22% of estuarine areas it assessed partially support or do not support their designated use.

Although considering the cumulative impacts of development is justified, we identified two major weaknesses that limit its effectiveness as a tool for assessing and preventing cumulative impacts to surface waters and wetlands. Precise determinations of cumulative impacts are not practicable because there is a lack of scientific data and understanding of cause and effect relationships between development activities and their environmental impacts. Further, required wetland mitigation may not address cumulative impacts due to limitations in assessing and conducting mitigation.

A major limitation in assessing cumulative impacts is that environmental science has not progressed to the point that permitting agencies can

determine with certainty which development activities cause an unacceptable cumulative impact. Cumulative impacts may be incorrectly attributed to a specific individual project when it is actually due to another project or an unrelated activity.

This problem occurs for two reasons. **First, there are inadequate data available to make these determinations.** In applying the cumulative impact consideration, regulatory agencies are to determine if a proposed activity, in addition to past, present, and anticipated future impacts of regulated activities, would violate water quality standards or cause significant adverse effects on wetland functions or surface waters. However, there is a general lack of past information on impacts to water resources. Current permit tracking and compliance databases do not contain adequate information on the type, nature, location, and function of wetland resources affected by an activity. Data available are local, case-specific, and are not readily applicable to a drainage basin.

Second, there is a lack of scientific understanding of the synergistic effects of development activities. Two or more developments may have a synergistic effect or interact together in a way that causes more damage to the environment than each project by itself. Many stakeholders believe synergistic effects frequently occur in complex ecological systems like wetlands. Because these effects are not very well understood by environmental scientists, it limits the validity and accuracy when conducting a cumulative impact analysis.

Some regulatory agencies contend that the easiest way for addressing cumulative impacts is for an applicant to conduct mitigation that offsets the impacts within the same drainage basin. However, cumulative impacts may still occur even when mitigation is conducted within the affected drainage basin. This is due to several limitations in assessing and conducting mitigation projects. First, the current method for assessing mitigation does not provide a clear indication of the extent to which the mitigation offsets the loss of wetland functions. Second, mitigation projects are sometimes unsuccessful in fully offsetting adverse effects. Reasons for unsuccessful mitigation projects include poor design, lack of oversight, and failure to construct, monitor, and report on mitigation sites. Lastly, ecological considerations further complicate the question of whether certain impacts should be mitigated within the same drainage basin.

It is questionable whether the problems with the cumulative impact consideration can be fully resolved. We reviewed professional and scientific literature to determine whether a consistent, equitable, and practical methodology exists that could be used to evaluate cumulative impacts at an individual project basis by Florida agencies. We found a variety of proposed methods, ranging from simple checklists of environmental factors to complex simulation models. However, each

methodology we reviewed had limitations that preclude us from recommending it be used as a standard approach by regulatory agencies.

Further, we considered changes to the existing process that would add clarity and certainty in applying the consideration. These changes included explicitly listing instances where mitigation may be conducted outside the drainage basin without incurring an unacceptable cumulative impact. However, we concluded that these changes to the existing process would not address fundamental weaknesses in assessing and managing for cumulative impacts.

Recommendations

Due to weaknesses in assessing cumulative impacts within the Environmental Resource Permitting Program, we believe that an alternative approach should be adopted. Under this alternative, cumulative impacts to surface waters and wetlands would be addressed proactively as part of an integrated land use planning approach. In general, the approach uses the best scientific information available to identify areas of highest resource values and develop strategies to protect and restore these areas. It also seeks to encourage economic development in more appropriate areas. Once the appropriate land uses are assigned to suitable areas, the need for the cumulative impact consideration would be reduced.

We recommend that the Legislature amend Chs. 163, 187, and 373, *Florida Statutes*, to provide that an integrated planning approach be used in considering cumulative impacts. The table on the next page presents a summary of statutory changes necessary for the Legislature to implement the integrated planning approach for considering cumulative impacts. We further recommend the current cumulative impact consideration be eliminated.

Agency Response

Three of the four state regulatory agencies and the Department of Community Affairs agreed with our recommendation to adopt the integrated planning approach. One agency agreed in concept with integrating environmental planning and regulation, but did not endorse our recommendation while another agency disagreed with the recommendation. However, most agencies wanted the cumulative impact consideration to remain in effect even if the integrated planning approach was adopted and wanted it to be eliminated only after the integrated planning approach had been fully implemented.

Table 1
Implementation of the Integrated Planning Approach

State Level	Regional Level	Local Level
Legislature to amend State Comprehensive Plan (Ch. 187, *F.S.*) establishing a policy with the goal of maintaining and protecting wetland functions ("no net loss of wetland function" goal) Legislature to amend Florida Statutes establishing criteria for "areas of highest resource values" and provide state agencies authority under Ch. 120, *F.S.,* to adopt rules Legislature to repeal the cumulative impact consideration under s. 373.414(8), *F.S.* Legislature to amend Ch. 373, *F.S.*, allowing the department and water management districts the ability to consider land use (in addition to existing review criteria) and deny Environmental Resource Permits that are inconsistent with the local comprehensive plan The department should revise the Natural Systems Component of the Florida Water Plan (s. 373.036, *F.S.*) by December 2002 to ▪ identify and delineate areas of highest resource values using the *Conservation Needs Assessment* data maintained by the Florida Natural Areas Inventory and ▪ revise strategies to reflect *Conservation Needs Assessment* data. Department of Community Affairs to develop incentives that encourage early implementation of the integrated planning approach	Legislature to require that water management districts amend district plans (s. 373.036, *F.S.*) by January 2003, to take the actions below. ▪ Identify and delineate areas of highest resource values using Conservation Needs Assessment data maintained by the Florida Natural Areas Inventory. ▪ Districts would coordinate efforts with the Florida Natural Areas Inventory to refine Conservation Needs Assessment data ▪ Include status and trends information on a regional watershed basis: 1. An inventory of wetland acreage (using available data) 2. Information on historical loss of wetlands 3. Description of current and future demand on water resources 4. Description of problems related to flooding, water quality, water supply, and habitat loss 5. Identification of regional strategies that protect and restore areas of highest resource values including land acquisition, restoration projects, and incentives (e.g., expedited permitting in non-critical areas)	Legislature to amend Ch. 163, *F.S.,* to require consistency between local government comprehensive plans and water management district plans (for comprehensive plans updated on or after January 2004). ▪ Local governments to evaluate anticipated impacts on areas of highest resource values using *Conservation Needs Assessment* data.[1] 1. Overlay *Conservation Needs Assessment* data map with future land use map. [2] 2. Re-evaluate land uses based on overlay map assessment. 3. Work with stakeholders to identify strategies that protect and restore areas of high resource values and encourage development in areas appropriate to support economic development. 4. Amend local comprehensive plans as part of their Evaluation and Appraisal Report (seven year update) to include strategies based on the *Conservation Needs Assessment* data.

[1] The Florida Natural Resource Inventory, Department of Environmental Protection, and Department of Community Affair, Florida Fish and Wildlife Conservation Commission, regional planning councils, and water management districts could provide technical assistance to local governments in accomplishing this effort.

[2] Local governments would coordinate efforts with the Florida Natural Areas Inventory to refine *Conservation Needs Assessment* data, if data are more accurate. The Florida Natural Areas Inventory anticipates that it would need a nominal increase in funds to update, maintain, and distribute the data at a regional and local level. The initial Conservation Needs Assessment cost was approximately $100,000.

Source: OPPAGA.

Chapter 1

Introduction

Purpose

In response to a recommendation in a March 2000 OPPAGA report on wetland mitigation, the Legislature directed OPPAGA to study the cumulative impact consideration in issuing an Environmental Resource Permit. [1, 2] In deciding whether to issue an Environmental Resource Permit, the Department of Environmental Protection (department hereinafter) and the water management districts are required to consider the cumulative impacts of an activity on surface waters and wetlands within a drainage basin. As required by law, our review addressed the justification for the cumulative impact consideration; whether a practicable, consistent, and equitable methodology for considering cumulative impacts in environmental permitting could be developed; and whether changes could be made in the current process that would provide greater clarity and certainty in applying the cumulative impact consideration.

Background

Adverse effects to wetlands and surface waters result from the cumulative effect of many actions over time

Florida's environmental policy recognizes that problems often result from the accumulation of many actions over time, rather than from one specific action. Such problems, referred to as cumulative impacts, pose a threat to Florida's natural environment, including its surface waters and wetlands. [3]

Construction of a single-family residence on a lake with 50 property owners illustrates a hypothetical application of cumulative impacts. This house's initial direct effects on the lake may be minor reductions in the lake's water quality and vegetation during construction due to runoff

[1] *Policy Review: Wetland Mitigation*, OPPAGA Report No. 99-40, March 2000.

[2] Section 373.414(8), *F.S.*

[3] Florida law (s. 373.019(22), *F.S.*) defines wetlands "as those areas that are inundated or saturated by surface or ground water at a frequency and a duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil…. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric seepage slopes, tidal marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto."

from the construction site. Bringing in sand to create a beach would bury aquatic grasses that once provided habitat to aquatic species and served as filters that remove waste from the water. Further, after construction is complete, runoff from the land would increase due to the paving of part of the site; this runoff could now include fertilizers and pesticides used to maintain a lawn. This single residence would reduce the lake's ability to absorb waste, but by itself may not greatly affect the lake's water quality. However, the cumulative impact of similar residences on all 50 lots could lead to severe water quality declines.

Managing cumulative impacts is important in protecting Florida's surface waters and wetlands

Managing cumulative impacts is important in protecting Florida's surface waters and wetlands. Wetlands serve many important functions, such as providing flood protection, aquifer recharge, helping maintain water quality, and supplying fish and wildlife habitat. Surface waters are essential to agricultural, domestic, and industrial water supply. These waters also provide recreational and economic opportunities for Florida's residents and visitors.

Florida has established programs to protect its surface waters and wetlands

One of Florida's major means of protecting its surface waters and wetlands is the Environmental Resource Permitting Program. This program regulates activities that alter surface water flows, contribute to water pollution, and affect wetlands. The department and four water management districts jointly administer the program. [4] Regulatory agency efforts are directed at balancing environmental preservation with private property rights and economic development pressures. The goal of the program is to ensure that regulated activities do not violate water quality standards, cause flooding, or degrade surface waters and wetlands functions.

An Environmental Resource Permit is required before starting construction for an activity that could affect wetlands, alter surface water flows, or contribute to water pollution. An individual seeking a permit must file an application with the department or appropriate water management district. [5] The applicant must provide reasonable assurance that the proposed activity will not violate water quality standards, adversely impact water resources, or the functions provided to fish and wildlife by wetlands and other surface waters.

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[4] The Northwest Florida Water Management District has not established an Environmental Resource Permit Program. Florida law requires the district to develop a plan to implement a program by July 2003. In the interim, the Department of Environmental Protection has authority to issue dredge and fill permits for activities in waters and wetlands connected to surface waters of the state, but not over isolated wetlands. In addition, the US Army Corps of Engineers regulates activities in waters and wetlands of the United States, which may include isolated wetlands statewide. A recent US Supreme Court decision limited the US Army Corps of Engineers' ability to regulate activities in isolated wetlands.

[5] The department issues permits for activities related to solid and hazardous waste facilities, mines, power plants, single-family dwellings on five acres or less, marinas and docks greater than nine boat slips, and open water projects. Water management districts review and issue permits for most other types of development activity.

Regulatory agencies must determine whether proposed activities are in the public interest

In addition, the regulatory agency must consider and balance various criteria in determining whether the proposed activity in wetlands and surface waters is contrary to the public interest. These criteria include the public health, safety and welfare; fish and wildlife; navigation; recreation and marine productivity; permanence; historical and archeological resources; and, the current condition and functional value of the area to be affected by the proposed activity. The agency would deny the permit application if the proposed activity was contrary to the public interest.

Adverse impacts not avoided or minimized must be mitigated

Unless exempted, adverse effects to wetlands or surface waters of the proposed activity must first be avoided or minimized.[6] If these effects are unavoidable, then the applicant must take mitigating actions to offset the adverse impacts of the proposed development. Mitigation actions can include creating new wetlands, restoring existing wetlands that have previously been damaged, enhancing the functions of wetlands, or preserving wetlands or associated uplands. Also, mitigation may include activities on or off the impacted site. Regulatory agencies must process permit applications within time limits specified by law.[7]

Cumulative impacts are to be considered in environmental resource permitting

Florida law requires that the department and water management districts consider cumulative impacts to surface waters and wetlands within a drainage basin in deciding whether to grant an Environmental Resource Permit.[8] Permitting rules require applicants to provide reasonable assurance that the proposed activity will not cause an unacceptable cumulative impact within the same basin that the activity is located.

Cumulative impacts are considered unacceptable when the proposed activity, in addition to past, present, and anticipated future impacts of regulated activities, would violate water quality standards or cause significant adverse effects on wetland functions or surface waters in the basin. If a permit reviewer determines that the project will have unacceptable cumulative impacts, they should deny the permit application. (For a discussion of thresholds for drainage basins, see page 7.)

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[6] Florida law and agency rules exempt certain activities from requiring an Environmental Resource Permit. Statutory exemptions include certain agriculture, horticulture, and silviculture activities. Florida law also authorizes the department and the water management districts to issue additional exemptions and general permits for activities determined to have minimal or insignificant individual or cumulative adverse impacts on water resources.

[7] Regulatory agencies have 30 days to review the applications or request additional information. When the requested materials have been received, the agency must review the submitted information and request any clarifying information within 30 days. Final agency action must occur within 90 days after receipt of the original application or the response to the last request for additional information, unless waived by the applicant.

[8] A drainage basin is an area of land from which water flows to a water body. Drainage basins are separated from adjacent basins by topographic boundaries. Drainage basins are adopted in rule by the department and water management districts.

Recent legislation clarifies cumulative impact consideration

The 2000 Legislature passed legislation that clarified the criteria for determining whether a permit applicant's mitigation actions would satisfy the cumulative impact consideration. Florida law presently provides that an applicant satisfies the cumulative impact consideration if the permit application proposes mitigation within the drainage basin affected by the project, and if the mitigation offsets the effects. However, this criteria does not preclude an applicant from proposing mitigation outside the drainage basin.

Chapter 2

Findings

Continued loss and degradation of water resources justifies consideration of cumulative impacts

Florida's surface waters and wetlands continue to be degraded or lost

We concluded that a state policy that considers the cumulative impact of development is conceptually justified because Florida's surface waters and wetlands have been and continue to be degraded or lost. Historically, Florida's wetlands have often been drained and filled for agriculture and urban uses. To illustrate, from 1780 to 1980, Florida lost 9.3 million acres or 46% of estimated wetlands acreage. [9, 10] Since that time, regional studies indicate that continued development has led to further impacts to wetlands. For example, an analysis conducted by St. Johns River Water Management District found that 51,300 wetland acres out of 1.9 million acres within the district were lost to agriculture or development from 1984 to 1994. [11] The analysis does not account for adverse effects that degrade wetlands functions including water withdrawals, encroachment, fragmentation, and pollution. The district study states these adverse effects are likely to be far more significant in terms of the functions wetlands perform than the acreage losses reported.

Loss and degradation of Florida's wetlands and surface waters and their associated functions contribute to problems, such as flooding, poor water quality, and habitat loss. For example, the department's 2000 Florida Water Quality Assessment indicates 47% of lake areas, 31% of river miles, and 22% of estuarine areas it assessed partially support or do not support their designated use. [12] The report cites adverse effects to wetlands as a major source of surface water quality problems.

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[9] Dahl, Thomas. *Wetlands: Losses in the United States 1780s to 1980s*. U.S. Fish and Wildlife Service, National Wetland Inventory, 1990.

[10] More recent data on statewide wetland losses will not be available until September 2001 when the U.S. Fish and Wildlife Service plans to issue a report on Florida's wetland losses from 1986 to 1997.

[11] The district reports that approximately 200,000 wetland acres were in some phase of restoration or enhancement during the period. However, not all areas with high acreage losses have restoration or enhancement projects.

[12] Hand, Joe et al. *2000 Florida Water Quality Assessment: 305(b) Report*, Florida Department of Environmental Protection, 2000.

Weaknesses in design and implementation limit the cumulative impact consideration's effectiveness

Although considering the cumulative impacts of development is justified, we identified two major weaknesses that limit its effectiveness as a tool for assessing and preventing cumulative impacts to surface waters and wetlands. Precise determinations of cumulative impacts are not practicable because there is a lack of scientific data and understanding of cause and effect relationships between development activities and their environmental impacts. Further, required wetland mitigation may not address cumulative impacts due to limitations in assessing and conducting mitigation.

There is a lack of data and scientific understanding of cause and effect relationships between activities and environmental impacts

A major limitation in assessing cumulative impacts is that environmental science has not progressed to the point that permitting agencies can determine with certainty which development activities cause an unacceptable cumulative impact. Cumulative impacts may be incorrectly attributed to a specific individual project when it is actually due to another project or an unrelated activity.

Available data are inadequate for assessing past, present, and future impacts

This problem occurs for two reasons. **First, there are inadequate data available to make these determinations.** In applying the cumulative impact consideration, regulatory agencies are to determine if a proposed activity, in addition to past, present, and anticipated future impacts of regulated activities, would violate water quality standards or cause significant adverse effects on wetland functions or surface waters. However, there is a general lack of past information on impacts to water resources. Current permit tracking and compliance databases do not contain adequate information on the type, nature, location, and function of wetland resources affected by an activity. Data available are local, case specific, and are not readily applicable to a drainage basin.

Reactive regulatory process limits agencies' ability to anticipate future impacts

The regulatory process is reactionary, which limits an effective evaluation of impacts on a basin-wide level. Regulatory agencies rely on future land use maps of local governments to help identify anticipated impacts. While these maps specify land use categories (e.g., agricultural, residential, or commercial), the regulatory agency cannot evaluate the impacts of an activity until the individual application is received and associated analysis is conducted.

Limited information available on impacts of exempted activities

Evaluating cumulative impacts is also weakened because of the lack of information on exempted activities. Various activities are exempt from permitting requirements under Florida laws and rules, ranging from certain small boat docks on a single-family development to larger agriculture and silviculture operations. [13] Many stakeholders believe that exempted activities have significant adverse effects on surface waters and wetlands. However, regulatory agencies are not notified about when and where exempted activities occur, the resources affected, or the nature of the impact. Since exempted activities are not tracked by regulatory agencies, the amount of adverse effects resulting from the exemptions is unknown.

Synergistic effects not well understood

Second, there is a lack of scientific understanding of the synergistic effects of development activities. Two or more developments may have a synergistic effect or interact together in a way that causes more damage to the environment than each project by itself. Many stakeholders believe synergistic effects frequently occur in complex ecological systems like wetlands. Because these effects are not very well understood by environmental scientists, it limits the validity and accuracy when conducting a cumulative impact analysis.

Regulatory agencies lack thresholds for deciding whether a specific impact is unacceptable

Also, assessing cumulative impacts assumes that clear thresholds can be established to indicate whether an action's impacts, combined with the impact of other activities, will jeopardize the sustainability of a natural system. However, regulatory agencies have not established such thresholds, and their staff question whether it is feasible to develop them. Given the lack of functional thresholds, it is uncertain what standards regulatory agency staff can or should apply in deciding whether a proposed activity will have an unacceptable cumulative impact.

Due to limited data and scientific understanding, we do not believe that the cumulative impact consideration can be consistently applied. There is no standard method for assessing cumulative impacts among Florida's regulatory agencies. There is also no agreement among regulatory agencies on the amount of information a permit applicant needs to provide in order for agency staff to determine whether the project would cause an adverse cumulative impact.

Consequently, the extent of analysis used in determining a project's cumulative impacts is left to the discretion of the permitting agency and varies on a project-by-project basis depending on the level of reasonable assurance the permit reviewer requires regarding adverse impacts. Regulatory agencies use similar criteria, but they are applied differently depending on the project. The criteria include the condition of the

[13] In addition to exempted activities, there are 27 types of Noticed General Permits for different activities including a 4,000-square-foot impact to isolated wetlands for single-family dwellings or a 2,000-square-foot impact for docks. General permits do not require mitigation.

affected wetland, the level of development surrounding the affected wetland, and the connection of the wetland to the existing basin. (For additional information on the approaches taken by regulatory agencies in considering cumulative impacts, see Appendix B.)

Due to limitations in assessing and conducting mitigation projects, cumulative impacts may not be adequately addressed

Regulatory agency staff raise greater concerns about cumulative impacts when permit applicants propose to offset wetland impacts by providing mitigation outside the affected drainage basin. The underlying concern is that mitigation conducted outside the affected drainage may not fully offset the functions lost, resulting in a residual effect that accumulates over time. Environmental permitting rules specify mitigation is best accomplished when located onsite or when it is close to the area being affected. Also, mitigation conducted offsite is only acceptable if adverse effects are offset and the applicant shows that onsite mitigation will not be viable in the long-term or offsite mitigation would provide greater improvement in ecological value than onsite mitigation.

Most mitigation is conducted in the affected drainage basin

Most mitigation is conducted in the drainage basin where the impacts occur. According to the department and water management districts, 20,800 Environmental Resource Permits were issued between 1998 and 2000. Of those permits, 1,836 (8.8%) required mitigation and only 406 permits with mitigation conducted those activities outside the affected drainage basin. See Appendix A for permit data by regulatory agency. Regulatory agency records indicate offsite mitigation was deemed appropriate because the affected wetland was fragmented from other wetlands in the basin and of low quality. Furthermore, the proposed offsite mitigation provided greater ecological value.

Cumulative impacts may still occur even when mitigation is in the affected drainage basin

Some regulatory agencies contend that the easiest way for addressing cumulative impacts is for an applicant to conduct mitigation that offsets the impacts within the same drainage basin. However, cumulative impacts may still occur even when mitigation is conducted within the affected drainage basin. This is due to several limitations in assessing and conducting mitigation projects.

First, the current method for assessing mitigation does not provide a clear indication of the extent to which the mitigation offsets the loss of wetland functions. Regulatory agencies use mitigation ratios specified in rule to define the amount of mitigation acreage needed to offset a specific

impact.[14] The use of ratios does not explicitly measure the amount of wetland functions lost by the proposed activity or gained by mitigation.

New method may provide greater assurance that wetland losses are mitigated

Recent legislative changes may improve the ability of the regulatory agencies to ensure that mitigation is sufficient to offset wetland losses. The 2000 Legislature adopted OPPAGA's recommendation that the department and water management districts develop a statewide wetland assessment methodology by February 2002. This wetland assessment methodology is intended to provide a consistent approach for assessing wetland functions lost and gained, accounting for time lag and risk.[15] However, given data limitations and scientific uncertainty, agencies still have an inadequate basis for determining whether a new activity's proposed mitigation will offset its adverse cumulative effects.

Second, mitigation projects are sometimes unsuccessful in fully offsetting adverse effects. Reasons for unsuccessful mitigation projects include poor design, lack of oversight, and failure to construct, monitor, and report on mitigation sites. Our previous study of wetland mitigation found that not all mitigation projects complied with permit requirements. As shown in Exhibit 1, up to one-third of the mitigation projects have not complied with permit requirements, which often limits their ability to mitigate for wetland impacts. Permittees with permits out of compliance are required to take corrective actions, such as replanting vegetation or regrading of land. The regulatory agency may also levy fines if corrective actions are not sufficient to bring the permit into compliance.

Exhibit 1
Not All Mitigation Projects Comply with Permit Requirements

Agency	Compliance Rate (1999)
Department of Environmental Protection (Southeast District)	67%
St. Johns River Water Management District	78%
South Florida Water Management District	79%
Southwest Water Management District	82%
Department of Environmental Protection (Northeast District)	87%
Suwannee River Water Management District	100%

Source: *Policy Review: Wetland Mitigation*, OPPAGA Report No. 99-40, March 2000.

[14] These ratios are based on the quality of the wetland affected, the wetland functions being performed, and the ability of the mitigation to offset those functions. The ratios vary depending upon the type of mitigation conducted. The ratios (mitigation acreage: impact acreage) generally range between: 1.5:1 to 4:1 for created or restored marshes; 2:1 to 5:1 for created or restored forested wetlands; 4:1 to 20:1 for wetland enhancement; and 10:1 to 60:1 for wetland preservation.

[15] In determining the value of wetland functions, the agency must consider the current condition, location in relation to its surroundings, hydrologic connection, uniqueness, and use by fish and wildlife. Time lag refers to the amount of time anticipated before the loss of wetland functions is offset by the mitigation. Mitigation risk refers to the likelihood of success.

Third, ecological considerations further complicate the question of whether certain impacts should be mitigated within the same drainage basin. The current drainage basins are not discrete in terms of ecological characteristics, but are primarily based on water flow patterns. This is especially important in reviewing an Environmental Resource Permit in which agency staff must consider impacts to different wetland functions including water quality, water quantity, and wildlife habitat. Wildlife species do not recognize nor are they restricted by drainage basins boundaries. Agency staff indicate that adjacent drainage basins may have similar ecological characteristics. To illustrate, mitigation service areas for 18 of the 23 (78.3%) permitted mitigation banks overlap multiple drainage basins due to similar ecological characteristics. [16] Due to these limitations, cumulative impacts may not be adequately addressed in mitigation projects.

There are instances where mitigation outside the drainage basin may be appropriate

There are instances in which mitigation conducted outside a drainage basin may be appropriate. We recognize that environmental permitting rules specify mitigation is best accomplished when located onsite or close to the affected area. However, state law and permitting rules allow mitigation offsite and beyond the drainage basin under certain conditions. For example, an applicant must show that onsite mitigation will not be viable in the long term or offsite mitigation provides greater ecological value. The law also establishes offsite regional mitigation options that increase regional ecological value and the likelihood of mitigation success. [17] We believe that the primary focus should be the ability of the proposed mitigation to offset adverse impacts, irrespective of where the mitigation occurs.

Whether mitigation outside a drainage basin is appropriate also depends on defining the role the specific wetland plays in the larger ecosystem. Permit reviewers are currently making this determination on a project-by-project basis. However, we believe this determination would be better made in a larger forum involving the local community and affected stakeholders. This would include a plan identifying resources critical to the drainage basin as well as those that are less important. This plan could serve to provide guidance in deciding when mitigation out of the basin is appropriate.

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[16] A mitigation bank is assigned a service area where the sale of mitigation credits is allowed. The boundary of the mitigation service area depends upon the geographical area where the mitigation bank could reasonably expect to offset adverse impacts. The actual boundaries may be larger or smaller than the regional watershed depending on both hydrological and ecological characteristics of the mitigation bank. Whether the bank can offset an adverse effect from a specific project is determined by the regulatory agency on a case-by-case basis.

[17] Historically, mitigation for adverse effects occurred onsite. However, studies conducted in the early 1990s found that these mitigation efforts were often unsuccessful.

A methodology for considering cumulative impacts at the individual project level is not available

It is questionable whether the problems with the cumulative impact consideration can be fully resolved. We reviewed professional and scientific literature to determine whether a consistent, equitable, and practical methodology exists that could be used to evaluate cumulative impacts at an individual project basis by Florida agencies. We found a variety of proposed methods, ranging from simple checklists of environmental factors to complex simulation models.

Project-level methodologies are limited in assessing cumulative impacts

However, each methodology we reviewed had limitations that preclude us from recommending it be used as a standard approach by regulatory agencies. Many of the weaknesses found in Florida were also identified in our review of the assessment methods. The main limitation is that the methods rely on individual project level analysis, rather than a regional approach.

Individual project level analysis techniques consider a limited number of projects with similar impacts on the wetland and fail to account for the implications of past, present and future activities. To compensate for these limitations, project level analyses are forced to make a number of assumptions in their calculations. The result is a cumulative impact consideration based on a high level of scientific uncertainty. (For additional information on the methodologies we reviewed, see Appendix C.)

Changes would add clarity and certainty in applying the consideration, but would not address basic problems

Despite the above weaknesses, environmental agency managers and staff told us they believe the cumulative impact consideration still provides a benefit by causing applicants to alter their projects to minimize impacts and provide additional mitigation. More specifically, the managers believe that the consideration is beneficial because it limits mitigation actions conducted outside the affected drainage basin. Thus, we sought to identify potential changes discussed below that could be made that would add clarity and certainty in applying the cumulative impact consideration within the current program. However, none of the following three changes would be satisfactory in our opinion:

- Amending the statutes to explicitly list instances in which the mitigation may be performed outside a drainage basin affected by an activity without incurring an unacceptable cumulative impact. This

would clarify for permit applicants when mitigation can be performed outside the affected drainage basin. However, this change would not address what amount of mitigation must remain within or may be conducted outside the affected drainage basin. This change also assumes that regulatory agencies can determine an acceptable level of impact for a drainage basin, which may not be feasible.

- Changing the geographic scale of the cumulative impact consideration from a drainage basin to regional watershed. This change only affects the South Florida Water Management District, which currently has 138 drainage basins. [18] A larger geographic area would provide applicants greater mitigation options, limiting the instances in which agencies would raise cumulative impact concerns. However, the larger area would increase the amount of information needed to establish and maintain a regional watershed perspective in assessing cumulative impacts. Thus, large regional watersheds may have the unintended effect of causing unacceptable local wetland cumulative impacts.
- Adopting a single methodology for assessing project level cumulative impacts. While this change would provide consistency in applying the consideration, it would not address the limitations we identified with existing methods for assessing cumulative impacts. Also, some stakeholders told us they question whether a consensus could be reached among various parties on using a standard method.

We concluded that these changes would not address fundamental weaknesses in assessing and managing for cumulative impacts. For example, even if the changes were made, permitting decisions would still be made on a project-by-project basis. Such piecemeal and reactive decision making does not adequately consider the cumulative impacts to surface waters and wetlands on a broader regional basis.

Integrated planning approach to addressing cumulative impacts should be adopted

Due to weaknesses in assessing cumulative impacts within the Environmental Resource Permitting Program, we believe that an alternative approach should be adopted. Under this alternative, cumulative impacts to surface waters and wetlands would be addressed proactively as part of an integrated land use planning approach rather than through the Environmental Resource Permitting Program.

[18] The drainage basin and regional watershed are the same area in the Southwest Florida, St. Johns River, and Suwannee River water management districts.

Proactive approach to cumulative impacts addresses limitation in current permitting process

This would be accomplished by identifying priority conservation areas and cooperatively developing strategies to protect and restore those areas, while encouraging economic development in more appropriate areas. Use of a planning approach in considering cumulative impacts also appears to have widespread support among various stakeholders. Studies conducted by various state and federal agencies have recommended addressing cumulative impacts through a planning approach. [19]

Best available scientific information used to identify priority conservation areas

In general, the integrated planning approach uses the best scientific information available to identify areas of highest resource values and develop strategies to protect and restore these areas. [20] These are areas where several different natural resource factors could be protected at the same time. Exhibit 2 provides a hypothetical illustration of how a centralized Geographic Information Systems dataset, such as the *Conservation Needs Assessment* data, could be used to identify areas of high resource values. In this map, the biodiversity, water resources, and recreational opportunities are plotted separately, but overlap together. The lands that have overlap between the individual resource values represent the areas of high resource values warranting greater protection.

State, regional, and local entities would incorporate the best scientific information into current planning activities. These activities include the Florida Water Plan, the water management district plans, and local government comprehensive plans. Regional and local entities would refine the data, which would be maintained by the Florida Natural Areas Inventory.

Data on priority areas incorporated into state, regional, and local planning efforts

Using these data, the department would identify and delineate areas of highest resource values for the state. The water management districts also would identify these areas for each regional watershed. Water management districts would establish and report on the status and trends of water resources on a regional watershed basis. Changes to local comprehensive plans would take place after the water management districts update their plans. The local communities would evaluate the potential effects of future development on these priority resource areas. Local communities would also work with stakeholders to develop strategies that protect and restore priority conservation areas, while encouraging economic development in more appropriate areas.

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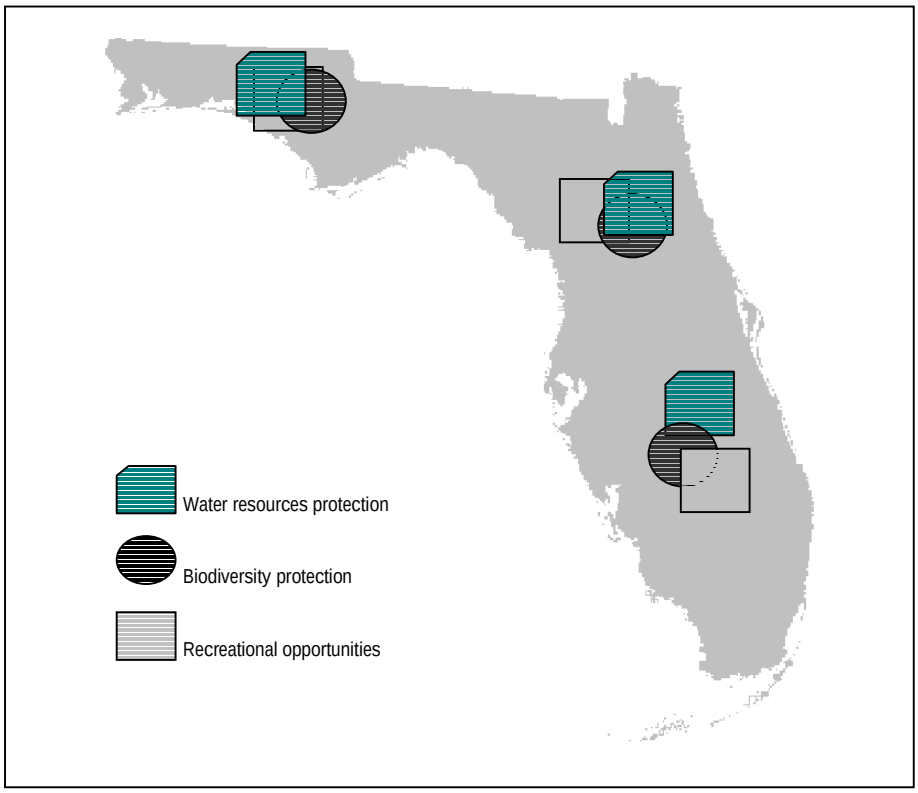
[19] These include the Southwest Environmental Impact Statement conducted by the US Army Corps of Engineers, 2000 St. Johns River Water Management District Technical Advisory Committee on Cumulative Impacts, and the *Transportation and Land Use Study Commission Report* of 1999.

[20] The Florida Natural Areas Inventory has worked with many natural resource experts to create a centralized dataset for the Florida Forever Advisory Council. The Geographic Information System data as part of the Conservation Needs Assessment are objective, science-based, and the best currently available. The dataset includes comprehensive information on biodiversity, water resources, coastal resources, and recreational opportunities. These data also serve to address many of the criteria found in the public interest test under Environmental Resource Permitting laws (s.373.414(1)(a), *F.S.*).

Restoration is especially important in areas affected by exempted activities, such as agricultural or silviculture operations.

Exhibit 2
Hypothetical Intersection of Overlays Provide Highest Resource Values



Note: This map is used for illustrative purposes only and may not represent areas of concern.
Source: Florida Natural Areas Inventory.

Permitting agencies should have authority to consider land uses

Once the information is integrated into the regional and local plans and land use strategies are developed, permitting agencies would have the authority to consider local comprehensive plans in permit decisions. These plans would encourage economic development in more appropriate areas. Further, these plans would seek to avoid and minimize impacts to priority conservation areas, including surface waters and wetlands. Thus, the need for the cumulative impact consideration would be reduced once the appropriate land uses are assigned to suitable areas.

Further, the ability of the regulatory agency to consider land use in permit decisions would prevent developers from circumventing the local government's land use plan. Currently, a developer expecting difficulty with approval of a land use change may first seek an Environmental Resource Permit for a land use that is otherwise inconsistent with the local plan. Once the permit is granted, the developer may request a land use change arguing that concerns over wetlands have been resolved by the permitting agency.

Exhibit 3 on page 17 presents the implementation of the integrated planning approach.

The integrated planning approach has several advantages for addressing cumulative impacts

The integrated planning approach has several benefits over the current cumulative impact review process, including those described below.

- It reduces the conflict between wetlands and surface water protection and development that can occur when decisions are made on a permit-by-permit basis.
- It offers an opportunity for the state and local communities to use the best information available in making decisions about development and the sustainability of environmental resources.
- It would provide some protection for isolated wetlands within the Northwest Florida Water Management District, which are not currently regulated.
- It allows state and local communities to design and implement specific coordinated solutions to address the most critical environmental problems of an area.
- It may direct development to more appropriate areas where mitigation is less likely to be needed.
- It provides greater predictability and certainty to property owners, developers, project planners, and local governments. Once critical resources are identified, the local comprehensive plan would help focus permit decisions and decisions regarding public land acquisition and restoration projects as well.
- It provides private landowners an opportunity to express and incorporate their concerns regarding property rights in the development of land use strategies.
- It may help reduce permit delays and expenditures for both permit applicants and agency permitting staff. [21]

[21] Cost savings are not readily quantifiable at this time.

The integrated planning approach can be implemented with minimal cost and effort

Integrated planning approach uses existing data and refines current plans

We believe that the integrated planning approach can be implemented with minimal cost and effort for several reasons. First, the approach incorporates most activities within current planning efforts by refining existing plans rather than developing new ones. Further, it relies on the best scientific data, currently available through the Florida Natural Areas Inventory (FNAI). FNAI is under contract with the Department of Environmental Protection to provide and maintain information for the Florida Forever Program. FNAI anticipates that it would need a nominal increase in funds to update, maintain, and distribute the data at a regional and local level. The initial *Conservation Needs Assessment* cost was approximately $100,000.

Also, under the approach, amendments needed to incorporate the data and revise land use strategies could be made on the current seven-year schedule for updating local comprehensive plans. [22] The Department of Community Affairs could also develop incentives to encourage earlier implementation of this approach. For example, the department could revise its criteria for awarding Florida Communities Trust funds to give additional consideration to local governments that amend their comprehensive plan using *Conservation Needs Assessment* data.

[22] We considered phasing out the cumulative impact consideration as the integrated planning approach is implemented, but were concerned this would result in conflicting policies. The scope of the cumulative impact consideration is based on drainage basins, which may consist of several counties. Phasing out the consideration while implementing the integrated planning approach may result in two adjacent counties within a basin having two different regulatory processes.

Exhibit 3
Implementation of the Integrated Planning Approach

State Level	Regional Level	Local Level
Legislature to amend State Comprehensive Plan (Ch. 187, *F.S.*) establishing a policy with the goal of maintaining and protecting wetland functions ("no net loss of wetland function" goal) Legislature to amend Florida Statutes establishing criteria for "areas of highest resource values" and provide state agencies authority under Ch. 120, *F.S.,* to adopt rules Legislature to repeal the cumulative impact consideration under s. 373.414(8), *F.S.* Legislature to amend Ch. 373, *F.S.*, allowing the department and water management districts the ability to consider land use (in addition to existing review criteria) and deny Environmental Resource Permits that are inconsistent with the local comprehensive plan The department should revise the Natural Systems Component of the Florida Water Plan (s. 373.036*, F.S.*) by December 2002 to ▪ identify and delineate areas of highest resource values using the *Conservation Needs Assessment* data maintained by the Florida Natural Areas Inventory and ▪ revise strategies to reflect *Conservation Needs Assessment* data. Department of Community Affairs to develop incentives that encourage early implementation of the integrated planning approach	Legislature to require that water management districts amend district plans (s. 373.036*, F.S.*) by January 2003, to take the actions below. ▪ Identify and delineate areas of highest resource values using Conservation Needs Assessment data maintained by the Florida Natural Areas Inventory. ▪ Districts would coordinate efforts with the Florida Natural Areas Inventory to refine Conservation Needs Assessment data ▪ Include status and trends information on a regional watershed basis: 1. An inventory of wetland acreage (using available data) 2. Information on historical loss of wetlands 3. Description of current and future demand on water resources 4. Description of problems related to flooding, water quality, water supply, and habitat loss 5. Identification of regional strategies that protect and restore areas of highest resource values including land acquisition, restoration projects, and incentives (e.g., expedited permitting in non-critical areas)	Legislature to amend Ch. 163, *F.S.,* to require consistency between local government comprehensive plans and water management district plans (for comprehensive plans updated on or after January 2004). ▪ Local governments to evaluate anticipated impacts on areas of highest resource values using *Conservation Needs Assessment* data[1]: 1. Overlay *Conservation Needs Assessment* data map with future land use map. [2] 2. Re-evaluate land uses based on overlay map assessment. 3. Work with stakeholders to identify strategies that protect and restore areas of high resource values and encourage development in areas appropriate to support economic development. 4. Amend local comprehensive plans as part of their Evaluation and Appraisal Report (seven year update) to include strategies based on the *Conservation Needs Assessment* data.

[1] The Florida Natural Resource Inventory, Department of Environmental Protection, and Department of Community Affair, Florida Fish and Wildlife Conservation Commission, regional planning councils, and water management districts could provide technical assistance to local governments in accomplishing this effort.

[2] Local governments would coordinate efforts with the Florida Natural Areas Inventory to refine *Conservation Needs Assessment* data, if data are more accurate. The Florida Natural Areas Inventory anticipates that it would need a nominal increase in funds to update, maintain, and distribute the data at a regional and local level. The initial Conservation Needs Assessment cost was approximately $100,000.

Source: OPPAGA.

Chapter 3

Recommendations

We recommend that the Legislature amend Chs. 163, 187, and 373, *Florida Statutes*, to provide that an integrated planning approach be used in considering cumulative impacts. Exhibit 3 (page 17) summarizes statutory changes necessary for the Legislature to implement the integrated planning approach for considering cumulative impacts. We further recommend the current cumulative impact consideration be eliminated. Regulatory agencies and the Department of Community Affairs were in general agreement with the adoption of the integrated planning approach. However, these agencies believe that the cumulative impact consideration should either remain in effect or be eliminated after the approach has been fully implemented.

Appendix A

Permitting Data for Calendar Years 1998 to 2000

The following exhibit presents data on Environmental Resource Permits issued between Calendar Years 1998 and 2000. OPPAGA staff obtained data from the department and the water management districts on total number of permits, number of permits with mitigation, and number of permits with out-of-basin mitigation. Data from the department, Southwest Florida and South Florida Water Management Districts for out-of-basin mitigation were based on estimations by agency staff. Most permits involving mitigation issued by the department are for impacts from single-family dwellings, where mitigation is conducted onsite and unlikely to be conducted out-of-basin. Thus, the department data were separated from the water management data because of different types of projects.

These data show that the vast majority of Environmental Resource Permits do not involve mitigation. In addition, those that do conduct mitigation rarely leave the drainage basin where the impact occurs. Most of the permits with mitigation outside the affected drainage basin occurred in the South Florida Water Management District.

Table A-1
Most Environmental Resource Permits Do Not Involve Mitigation Conducted Outside the Affected Drainage Basin

Agency	Environmental Resource Permits	Permits with Mitigation		Permits with Out-of-Basin Mitigation		
		Number	Percentage of Total Permits	Number	Percentage of Total Permits	Percentage of Permits with Mitigation
Southwest Water Management District	5,815	378	6.5%	2	0.03%	0.5%
South Florida Water Management District	3,935	806	20.5%	267	6.8%	33.1%
St Johns River Water Management District	3,692	418	11.3%	118	3.2%	28.2%
Suwannee River Water Management District	1,778	36	2.0%	0	0%	0.0%
All Water Management Districts[1]	15,220	1,638	10.8%	387	2.5%	23.6%
Department of Environmental Protection	5,580	198	3.5%	19	0.3%	9.6%
All Agencies	20,800	1,836	8.8%	406	2.0%	22.1%

Note: Data from Northwest Florida Water Management District was not included because permits are not issued for activities in isolated wetlands.
Source: OPPAGA analysis of department and water management district.

Appendix B

Agency Approaches for Considering Cumulative Impacts

The following section details the approach used to consider cumulative impacts by the department and the four water management districts with Environmental Resource Permitting programs. [23]

Suwannee River Water Management District

The Suwannee River Water Management District is one of the more rural districts and is not under the development pressure seen in other parts of the state. Although the district requires a cumulative impact consideration, there are few permits with mitigation and none outside of the affected basin. Thus, the cumulative impact consideration has not been an issue for the district at this time. If and when an assessment is conducted, staff stated that the consideration would be based primarily on best professional judgment because of the methodological limitations that make it difficult to accurately assess cumulative impacts.

St. Johns River Water Management District

St. Johns River Water Management District staff state that they always conduct a cumulative impact consideration. This consideration may take many forms, as long as it provides reasonable assurance that mitigation efforts would not result in adverse cumulative impacts. Staff use a "broad-brush" approach to applying the policy, stating that the purpose of the consideration is to examine the condition of the basin and determine the effects of the proposed development and other similar projects.

The type of assessment conducted by district staff ranges from a cursory review based on the professional experience of the district staff, to a detailed and analytical assessment that is primarily created by the applicant. The amount of review varies according to the discretion of the permit reviewer on a project-by-project basis. Approaches taken by district staff and the applicant for assessing cumulative impacts are illustrated in the three categories below.

[23] The Northwest Florida Water Management District and DEP Regional office in that area of the state do not have an ERP program. Cumulative impact considerations are required under the dredge and fill permitting programs.

- **Category 1.** Cooperative interaction results in a mitigation that clearly meets the cumulative impact criteria because it offsets the impacts within the affected drainage basin and does not require a detailed formal assessment by the applicant. A majority of applicants fall into this category.
- **Category 2.** A coarse assessment by district staff is all that is needed to conclude that a significant adverse cumulative impact will (or may) result from the proposed project in conjunction with other past, present, and future projects with similar impacts. The applicant can revise the project or provide a detailed cumulative impact assessment. In the last three years, district staff estimate that between 13 to 50 projects have fallen into this category.
- **Category 3.** The applicant provides a detailed, formal cumulative impact assessment. District staff review and verify the information, may request additional data, or may collect information on their own to evaluate whether adverse cumulative impacts will occur. In the last three years, district staff estimate that seven projects have fallen into this category.

Southwest Florida Water Management District

The Southwest Florida Water Management District contains some of the largest drainage basin of all the water management districts. [24] As a result, there are generally more mitigation options available within a basin. In fact, only two cases where applicants conducted mitigation outside the affected basin have occurred in the last three years. In both cases, the project was very close to the basin boundary and the affected wetlands had been disconnected from the affected basin by a roadway.

District staff indicate discussing cumulative impacts with applicants during the pre-application meeting. When assessing cumulative impacts, staff generally consider wetland location and condition. Concerns with cumulative impacts depend upon the degree of degradation resulting by existing urban development. Permit reviewers use their best professional judgment, although they may ask the applicant to provide additional information. From this, staff use the additional information in determining whether the project will result in adverse cumulative impacts. Staff also refer to a draft guidance document on cumulative impacts that lists certain instances where mitigation conducted outside the affected basin may be appropriate.

[24] For example, the Peace River basin in the Southwest Florida Water Management District is 2,350 square miles and encompasses most of Charlotte, DeSoto, Hardee, and Polk counties. One field office in Venice reviews permits in Charlotte and Desoto counties, while another field office in Bartow reviews permits for Hardee and Polk counties.

South Florida Water Management District

The South Florida Water Management District contains the largest number of drainage basins of all the water management districts. Flood control activities (ditching and draining) have altered drainage patterns in the district resulting in 138 drainage basins. Many of these basins are small and highly developed. As district staff recognize, some of the drainage basins are too small to allow for a practical application of the cumulative impact consideration. Thus, permit applicants in these small basins have fewer available mitigation options.

Staff report that there is some level of assessment conducted on each project, but projects with mitigation outside the affected drainage basin receive additional scrutiny. Staff discuss cumulative impact concerns at pre-application meetings and advise the permit applicant of any possible concerns related to cumulative impacts. Staff also provide suggestions regarding how to address these concerns based on their best professional judgment of cumulative impacts. The applicant may choose to produce additional information or hire a consultant to conduct the analysis. Data used by district staff in considering cumulative impacts includes maps of wetland acreage, permits issued, public lands acquired, and future land uses. Although the rigor of analysis varies for each permit application, staff primarily focus on the three factors below.

- **Level of development in the drainage basin.** Some drainage basins are more developed than others, and some are experiencing exponential growth. For example, the C-10 drainage basin in Palm Beach County is highly developed with a small amount of remaining wetland acreage.
- **Level of wetland function.** Historic, current and future basin hydrology, and the extent resources have been altered; habitat value and the presence of listed species; exotic plant species infestation; and the long-term viability of the wetland in the face of development pressure.
- **Location of the wetland.** This issue relates to whether the wetland is isolated or regionally connected to other wetland systems.

Department of Environmental Protection

The Department of Environmental Protection reviews different types applications than the water management districts, such as landfills and single-family homeowners. In these cases, staff assess how the project will affect the wetland and how similar projects will affect the area. The consideration takes many forms, but is seldom a detailed analytical assessment.

In practice, there is no standard process for considering cumulative impacts, and the assessment varies on a project-by-project basis. Agency staff generally use their best professional judgment to consider cumulative impacts. The larger the project and the impacts, the more time and documentation are needed. On large projects, the reviewer will research past permits and talk with other agencies.

Appendix C

Methodology Review

We reviewed the professional and academic literature to determine whether a consistent, equitable, and practical methodology exists that could be applied in Florida. Although there are many types of cumulative impact assessment methodologies, most can be grouped into five major types: checklists, scaling/weighting techniques, overlays, matrices, and networks.

- **Checklists.** These are lists of environmental effects, which might result from an activity. They usually include some type of parameter that has been established for each factor to say whether the factor is within an acceptable limit. The permittee reviews the lists and "checks" if the factor is present and whether it is within the specified parameters. While checklists are good for identifying effects, they do not lend themselves to impact measurement or significance.
- **Scaling/weighting techniques.** Scaling addresses issues of magnitude, but often in a subjective fashion. Weighting tends to address significance, but again, often in a subjective manner. In effect, the researcher is assigning values to factors that do not represent actual interval or ration measurements. The net effect is that the researcher may be able to say a value is higher than another, but not by how much.
- **Overlays.** This method uses a series of maps depicting various environmental and landscape features as well as socioeconomic characteristics for a given geographical area. When map are overlaid on one another, areas of multiple concerns are identified. The weakness of this method is that it does not effectively measure the magnitude of each impact or its relative significance. The overlay method is also bounded by the spatial extent of the maps used; the larger the area the less the detail.
- **Matrices.** This method attempts to relate one or more checklists to one another in identifying cause and affect relationships. The method utilizes matrix algebra and is useful for determining magnitude and relative significance, although in a subjective manner. Matricies do not account for temporal effects very well and they can overinflate relationships.
- **Networks.** This method is used to track the "chain of effects." The method looks at an impact and works backward to identify all the factors that may have caused the impact. It then uses this information to project forward any continuing impacts. This method is extremely data intensive and very complex. Considerable time can be spent looking at an impact that may not be very important relative to another. Additionally, because the model uses a system of different scenarios, the entire method can fail with only one mistake in data.

Table C-1
Cumulative Impact Methods Have Varying Strengths and Weaknesses

Method	Description	Strengths	Weaknesses
Questionnaires, interviews, and panels	Gathers a wide range of information on multiple actions and resources needed to address cumulative effects. Information is generally based on best professional experience.	Flexible Deals with subjective information	Cannot quantify information Any comparison of alternatives is subjective
Checklists	Helps by identifying potential cumulative effects by providing a list of common or likely effects and juxtaposes these effects against actions or specific resources.	Systematic Concise	Can be inflexible Does not address interactions or cause and effect relationships
Matrices	Uses a tabular format to organize and quantify the interactions between human activities and resources of concern. Matrix algebra is used to determine the relative impact between the interactions.	Comprehensive presentation Comparison of alternatives Address multiple projects	Does not address space or time Can be cumbersome Does not address cause and effect
Networks and system diagrams	Delineates the cause and effect relationship resulting in cumulative impacts. They allow the user to analyze the multiple, subsidiary effects of various actions and trace indirect effects to resources that accumulate from direct effects on other resources.	Facilitates conceptualizing Address cause and effect Identifies indirect effects	Misses secondary effects Problem of comparable units Does not address space or time
Modeling	Quantifies cause and effect relationships. Can take the form of a mathematical formula or a description of steps on an analysis the computes the effect of various project scenarios based on a program of logical decisions.	Can give unequivocal results Addresses cause and effect Quantifiable Can integrate space and time	Requires large amount of data Can be expensive Intractable with many interactions
Trends analysis	Assesses the status of the resource, ecosystem, and human community over time and usually results in a graphical projection of past or future conditions. Changes in the occurrence or intensity of the stressors over the same time period can be detected.	Addresses accumulation over time Problem identification Baseline determination	Need a lot of data in relevant system Extrapolation of thresholds is subjective
Overlay mapping and GIS	Incorporates location information with landscape parameters and identifies area where the effects may be of greatest concern.	Addresses spatial boundaries and proximity of effects Effective visual presentation Can optimize development options	Limited to effects based on location Do not explicitly address indirect effects Difficult to address magnitude of effects

Source: Council on Environmental Quality. (1997). *Considering Cumulative Effects Under the National Environmental Policy Act.* Executive Office of the President. Washington, D.C.

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Appendix E

Agency Responses

In accordance with the provisions of s. 11.45(7)(d), *Florida Statutes*, a draft of our report was submitted to the secretaries of the Departments of Environmental Protection and Community Affairs and to the executive directors of the St. Johns River Water Management District, the South Florida Water Management District, the Southwest Florida Water Management District, and the Suwannee River Water Management District for their review and comment.

These written responses are reprinted herein beginning on page 29.

Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Jeb Bush
Governor

David B. Struhs
Secretary

July 20, 2001

Mr. John W. Turcotte, Director
Office of Program Policy Analysis
and Government Accountability
111 West Madison Street
Claude Pepper Building, Room 312
Tallahassee, Florida 32399-1475

Dear Mr. Turcotte:

Thank you for the opportunity to provide comments on the June 2001 draft report entitled "Integrated Planning Approach Needed — Cumulative Impact Consideration in Environmental Permitting Is Flawed." OPPAGA staff should be commended for the thoroughness of their review and the amount of time spent discussing the issues with stakeholders and agency staff. The draft report contains a thoughtful analysis of cumulative environmental impacts and the limitations of reviewing cumulative impacts through the Environmental Resource Permitting program. However, we disagree with some of the conclusions in the report as discussed below.

While we agree with the report's general recommendation of strengthening the local government comprehensive planning process, we do not agree that the cumulative consideration in the permitting process should be eliminated. We believe that the review of cumulative impacts in the permitting process is just one tool that should be used to address this type of impact. Due to the reactive, case-by-case nature of permitting, we agree that the permitting review is only partially effective in addressing cumulative impacts. We certainly agree that strengthening the consideration of cumulative impacts in the local planning process is critical in the overall protection of our water resources. However, we believe that properly implemented, the planning and permitting reviews should be complementary, as each tool is most effective in different ways. The local government planning process allows a broad view of the water resources and provides the opportunity to direct growth away from environmentally sensitive areas. A well-considered, properly enforced local government comprehensive plan provides an excellent basis for the control of cumulative impacts, and would certainly simplify the review at the permitting level. The permitting review, with its more specific, detailed information and analysis allows for a more effective cumulative impact review for many types of water quality impacts, rare

ecological communities or wildlife species within the basin, and other resource effects that can not be adequately addressed with the general information available during the planning process.

We also believe that the report incorrectly reaches the conclusion that "(t)he integrated planning approach can be implemented with minimal cost and effort." We believe that the approach outlined in the report would require a fairly substantial investment in local government and water management district staff and resources to properly implement. The resource information proposed to be relied upon in the comprehensive planning process would need to be supplemented and expanded in order to serve the intended purpose. In addition, the mechanisms to ensure proper implementation and enforcement of local government comprehensive planning need to be carefully considered and designed in order for the process to be successful.

Another significant issue is that of vested rights under local government comprehensive plans and approvals. It is unlikely that the proposed process would eliminate these rights, and therefore the cumulative impacts of development in these areas could not be considered if the permitting cumulative impact review were eliminated. The magnitude of these impacts has the potential to be significant.

In addition to these overall comments, Department staff has provided, under separate cover, extensive detailed comments and technical corrections that we hope are helpful in the preparation of the final report.

We appreciate the opportunity to provide comments. If you have questions regarding our comments, please contact Janet Llewellyn, Deputy Director of the Division of Water Resource Management at 850/ 921-3027.

Sincerely,

/s/
Mimi A. Drew
Director
Division of Water Resource Management

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

JEB BUSH
Governor

STEVEN M. SEIBERT
Secretary

July 27,2001

Mr. John Turcotte, Director
Office of Program Policy Analysis
and Governmental Accountability
111 W. Madison Street, Ste. 312
Tallahassee, Florida 32399-1475

RE: Policy Review: Cumulative Impact Consideration in Environmental Permitting

Dear Mr. Turcotte:

Thank you for the opportunity to comment upon OPPAGA ' s policy review of the cumulative impact to wetlands consideration in the Environmental Resource Permitting process. The protection of Florida's wetland systems and the attendant benefits that they provide is a complex and important issue facing our state. The ecological and societal value of wetland systems is well recognized and their protection should be a high priority for maintaining our quality of life.

We generally agree with and see merit in the concept of revising the cumulative impact considerations as part of Environmental Resource Permitting based on the substitution of strengthened land planning protection of critical land and water ecosystems. A policy of avoidance should be the first in a series of actions to protect the areal extent and function of wetlands and their functionally related uplands that comprise our wetland systems. The need for a cumulative impact consideration should be greatly diminished if appropriate land uses are assigned to suitable areas which would appear to be a way to better ensure wetland protection, increase predictability in the land market and reduce the burden on the permitting process.

We do, however, see difficulties in implementing this concept based upon our experiences and, due to the complexity of this issue, would recommend that all stakeholders be involved in a continuing process to refine your suggestions. It is important to recognize the legal, political and practical difficulties likely to occur during the establishment of revised land use strategies to protect wetland systems. Therefore it would not be advisable to revise the cumulative impact assessment until such strategies were in place.

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Should the direction that you recommend be taken, we suggest that changes to the cumulative impact considerations as part of Environmental Resource Permitting be linked to successful revision of comprehensive plans such that any changes to permitting criteria within a particular jurisdiction occur only after that jurisdiction has appropriately amended its comprehensive plan and adopted implementing land development regulations. To ensure that our critical wetland systems are adequately protected and to assist local governments, we suggest that work be initiated to characterize the appropriate wetland protection strategies for use in local government comprehensive plans, revisions to the comprehensive plans be completed in a reasonable period of time, and that the water management districts as well as the Department of Environmental Protection be asked to directly assist in this process.

Again, thank you for the opportunity to comment. We look forward to working with you.

Sincerely,

/c/
Charles Gauthier, AICP
Chief, Bureau of Local Planning

CG/jb

cc: Cari Roth, General Counsel
James L. Quinn, Chief, Bureau of State Planning

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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August 20, 2001

John Turcotte, Director
Office of Program Policy Analysis and Government Accountability
111 W. Madison Street, Suite 312
Tallahassee, Florida 32399-1475

Dear Mr. Turcotte:

Subject: Draft Report No. 01-xx; Cumulative Impacts

Thank you for the opportunity to provide a response to the Office of Program Policy Analysis and Government Accountability (OPPAGA) draft Report regarding cumulative impacts (Report). I understand that your staff have worked with staff of the South Florida Water Management District (SFWMD), the other water management districts and the Department of Environmental Protection in preparing this report, and I appreciate your consideration of their contributions. Following is SFWMD's response to the Recommendations of the Report and some general comments regarding information contained in the report.

SFWMD concurs with the recommendation that an integrated planning approach be used in considering cumulative impacts. However, until a new approach is implemented, it is essential that the current cumulative impact review be continued. We offer the following comments to help create a nexus between environmental planning and environmental regulation.

Cumulative Impacts

The Report characterizes the "cumulative impacts" review in the Environmental Resource Permit program as a rule provision that could be modified with relatively little impact on the environment. In fact, the state's entire Environmental Resource Permitting program (ERP) is founded on the necessity of evaluating cumulative impacts of individual projects. No one project in and of itself has the potential to so significantly impact Florida's wetlands and surface waters to warrant the rules, staffing and effort of an ERP permitting program. Rather, it is the potential cumulative effect of many projects, statewide, that justifies the ERP program.

Mitigation

The Report focuses on whether mitigation performed to offset potential environmental impacts of a project is "in" vs. "out' of a drainage basin. However, the Report misses the more critical and basic question of whether wetland mitigation does in fact offset the impacted wetland's role in the basin. It is the wetland's contribution to the water resources in the drainage basin that should be the focus in the analysis.

The Report and the recommendations view the drainage basin as the issue. This is borne out by the apparently contradictory findings on pages eight and 15. Page eight, in discussing a potential change from a drainage basin analysis to a watershed analysis, states "Thus, large regional watersheds may have the unintended effect of causing unacceptable local wetland cumulative impacts.". Page 15, in

describing the effect of numerous, small drainage basins, states "As district staff recognize, some of the drainage basins are too small to allow for a practical application of the cumulative impact consideration.". Neither of these statements is accurate. Ensuring that wetland mitigation offsets the functional role a wetland plays in the ecosystem is not dictated by the basin or watershed size.

Page seven of the Report recommends that the primary focus should be on the ability of the mitigation to offset adverse impacts irrespective of mitigation location. We concur with this recommendation and emphasize this is the cornerstone of all mitigation today. However, location (not necessarily in or out of basin) is and should be a consideration in reviewing the opportunity for mitigation to offset in impact.

Wetland habitat in the Florida Keys, an area with no defined drainage basins or watersheds, illustrates this point.

The Key Deer population survives only on Big Pine Key in the Florida Keys. The population is dependent on a handful of isolated, freshwater wetlands for food and water. Were one of these wetlands to be impacted, and mitigation done on another key, there may be no measurable impact to the Key Deer population. However, the cumulative effect of many projects impacting isolated wetlands on Big Pine Key poses a threat to the Key Deer regardless of how much mitigation is provided elsewhere. It is the cumulative effect of the loss of the functional role that an individual wetland has relative to its surroundings that is potentially adverse.

The opposite is also true. For example, there may be a wetland on Big Pine Key that is so densely populated with Brazilian pepper trees that Key Deer may be precluded from foraging in or drinking from the wetland. The wetland may still support some reptiles and amphibians. Loss of the wetland may not have a significant adverse impact on the Key Deer (setting aside the question of whether the new development may be compatible with Key Deer). Mitigation some distance away, but within the range of the same population of reptiles and amphibians, may offset the loss of the wetland.

In yet another example, impacts to a small mangrove wetland on Big Pine Key (again, assuming the new land use is compatible with Key Deer) may not threaten the Key Deer. Mitigation done on an adjacent key, outside the range of the Key Deer but within the home range of the Great White Heron, may replicate the role that mangrove wetland plays in the ecosystem.

In these examples, the issue is obviously not the drainage basin since there are no defined drainage basins in the Keys. Rather, the issue is one of defining the functional role of a particular wetland, including its location, and offsetting any impacts to that functional role.

Although the recommendations of the Report support the continued recognition of the value of determining wetland roles in ecosystems, the Report fails to recognize that this determination is being made today during permit application review, albeit on a project-by-project basis.

Contrary to the findings of the Report, determining the functional role of a wetland is not so difficult to do. The pivotal question is what threshold amount of wetland impact poses a significant adverse

impact to the local wildlife or water quality. This is a difficult question to answer during the permitting process and will also be a difficult question to answer in a planning effort. However, answering this question in a planning mode rather than on a permit-by-permit basis will likely add more certainty to the regulatory process.

The Interim

The report makes note of our District's numerous drainage basins. We believe there is an interim benefit for our District to pursue the use of more ecologically based watershed boundaries. Page 15 of the report states "As district staff recognize, some of the drainage basins are too small to allow for a practical application of the cumulative impact consideration. Thus, permit applicants in these small basins have fewer available mitigation options." We do not concur that small drainage basins have limited an applicant's mitigation options. However, small basins have resulted in staff and applicant time spent demonstrating compliance with the rule when the appropriateness of the mitigation within the watershed has already been determined.

In the SFWMD, watersheds tend to more closely follow ecosystems. Thus, the watershed would make a better fit as the basis for examining the functional role of a wetland. Our Governing Board has requested staff to investigate a change from a basin perspective to a watershed perspective.

Looking Ahead

Elimination of the current cumulative impact review prior to implementation of the Report's recommendation would be problematic. The absence of a cumulative consideration would provide that land value, rather than ecology, would drive mitigation location. If mitigation anywhere could offset a given wetland impact, it is logical to presume that applicants will seek the least costly mitigation regardless of location or ecology. The result would be a concentration of interior mitigation and the degradation of coastal watersheds.

Again, thank you for the opportunity to respond to the Report. It you require any further assistance of SFWMD, please contact Mr. Robert Robbins, Director of our Natural Resource Management Division, at (561) 682-6951 or Suncom 229-6951.

Sincerely,

/s/
Naomi S. Duerr, P.G., Deputy Executive Director
Water Resources Management
South Florida Water Management District

HD/rr

Southwest Florida Water Management District

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Lecanto Service Office
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August 22, 2001

John W. Turcotte, Director
Office of Program Policy Analysis and Government Accountability
Claude Pepper Building
111 West Madison Street, Room 312
Tallahassee, Florida 32399-1475

Dear Mr. Turcotte:

Subject: Agency Response to Cumulative Impact Report

This letter represents the agency response from the Southwest Florida Water Management District regarding the draft of the report entitled *Integrated Planning Approach Needed to Address Limitations in Assessing Cumulative Impacts* which we received on August 13, 2001.

The Southwest Florida Water Management District is supportive in concept of OPPAGA's efforts to establish a more meaningful link between environmental planning and environmental regulation to address regional environmental issues. We also agree that the concept of identifying regionally significant resources and coordinating protection with state, regional and local agencies is appropriate. We are concerned, however, that some of the specific conclusions in the draft report are inaccurate and that the recommendations appear to depart from the expressed intent of the Legislature in Chapter 373, Florida Statutes. We are also concerned that the specific recommendations in the report, if implemented, could lead to additional, unacceptable cumulative impacts to water resources. We have organized our concerns into eight major issues as explained below:

Issue - The proposed solution requiring development of local resource protection strategies may be contrary to regional water management goals.

We believe the approach proposed by OPPAGA could lead to the adoption of inconsistent resource protection strategies if local governments have sole responsibility for independently developing these strategies without regional guidance. A strategy to protect priority resources within a watershed will be most effective if it is part of a comprehensive plan to protect the entire watershed and it is implemented to achieve consistent results throughout the watershed. Variations in resource protection strategies among various communities within a watershed could result in resource fragmentation and additional cumulative impacts.

The likely result of the approach recommended by OPPAGA would be a retreat from the concept of regional, comprehensive water management that has been operative water policy in the state through Chapter 373, F.S., since 1972 and would be contrary to the intent of Section 373.414(9), F.S., which states "rules shall seek to achieve a statewide, coordinated and consistent permitting approach to activities regulated under this part. Variations in permitting criteria in the rules of individual water management districts or the department shall only be provided to address differing physical or natural characteristics. . ."

The Southwest Florida Water Management District believes that a more effective and consistent level of resource protection can be achieved if the water management districts have a more substantive role in establishing resource protection criteria on a watershed-wide basis.

Issue - The proposed solution does not solve the stated problems.

The draft report identifies certain problems in the current regulatory approach to preventing unacceptable cumulative impacts. For example, one identified problem is the lack of functional thresholds to apply in a cumulative impact analysis (page 5). Another identified problem pertains to the exemptions in rule and statute which may cause unacceptable cumulative impacts (page 6). A third problem identified in the draft is the fact that not all mitigation is completely successful or in compliance (page 6). It is not clear how the recommended integrated planning approach would eliminate these problems to the extent that they exist.

An illustration of an unacceptable cumulative impact is provided as a hypothetical example on page two of the draft report. In this example, 50 homes are constructed on a lake resulting in a cumulatively significant loss of habitat and degradation of water quality. Unless the lake were located in an-area of "highest- resource value" using Conservation Needs Assessment Data, it appears that these unacceptable cumulative impacts would be allowed to occur under the proposed integrated planning approach.

Issue - A standard method does exist for assessing cumulative impacts.

An overall conclusion of the draft report and a basic premise behind the OPPAGA recommendation (see page 1) is that a consistent, equitable, and practical methodology for considering cumulative impacts at the individual project level is not available at this time. Page 5 of the draft report states that "no standard method exists for assessing cumulative impacts among Florida's regulatory agencies."

The Legislature amended Section 373.414(8), Florida Statutes, last year to make it clear that mitigation which offsets adverse impacts within the drainage basin is considered to meet cumulative impact requirements. The Southwest Florida Water

Management District believes this constitutes a standard method for assessing cumulative impacts. Further, as shown in Appendix A of the draft report, this standard was applied in 99.97 percent of the Environmental Resource Permits issued by this agency during the study period.

We believe the consistency problem described in the report is more accurately characterized by the lack of a standard method for assessing specific out-of-basin mitigation projects. Viewed from this perspective, the scope of the solution recommended by OPPAGA appears to be disproportional to the actual scope of the problem. The out-of-basin mitigation problem for which OPPAGA expresses concern occurred in only 0.03 percent of the permits issued by the Southwest Florida Water Management District during the study period and in only 2 percent of all permits statewide (see Table A-1).

Issue - Protecting only those areas with highest resource values is inconsistent with the objectives of comprehensive watershed management and will result in unacceptable cumulative impacts in the drainage basin.

Page 9 of the draft report states that the department will delineate areas of "highest resource values" and that local communities would develop strategies to protect and restore these "priority conservation areas". The Southwest Florida Water Management District is concerned that an approach which only identifies and protects those areas deemed to have the highest resource values leaves the majority of the wetlands in the basin unprotected. This approach is inconsistent with the objectives of comprehensive watershed management and would very likely result in an even greater level of unacceptable cumulative impacts than are described in the draft report under the current regulatory approach. It is suggested that all wetlands and surface waters within a watershed should be considered in a comprehensive manner and that a strategy to protect the entire watershed is more meaningful than one which only targets certain resource features in isolation.

As a related matter, Exhibit 3 appears to contain contradictory tasks. Under the heading "Regional Level" the water management districts are to identify and delineate the areas of "highest" resource values. Under the heading "Local Level", local governments are to work with stakeholders to identify strategies that protect and restore areas of "high" resource values.

Issue - The report confuses mitigation conducted off-site and mitigation conducted outside the drainage basin.

Throughout the draft report there seems to be confusion between off-site mitigation and out-of-basin mitigation. The historic problems with on-site mitigation practices cited in

the draft report should not be extrapolated to all mitigation within the basin. The Southwest Florida Water Management District recognizes that on-site mitigation is not always the best mitigation option and, in those cases, we encourage consideration of regionally significant offsite mitigation or use of a mitigation bank within the drainage basin. All of the drainage basins within the Southwest Florida Water Management District have restoration needs and provide opportunities for mitigation even if mitigation banks or regional offsite mitigation areas have not been formally established in every basin.

Issue - Best available information should be used to determine areas with highest resource values.

Page 9 and Exhibit 4 of the draft report state that the water management districts shall use the Conservation Needs Assessment data maintained by the Florida Natural Areas Inventory (FNAI) to identify and delineate areas of highest resource value. It appears that the FNAI data is intended as the only information source to be used for this purpose. The Southwest Florida Water Management District suggests that a comprehensive review of all available information will lead to better decision making regarding environmental protection. All information should be considered and the best available information should be used in a resource assessment exercise of this scale and importance.

Issue - More practical and timely solutions exist to remedy cited problems.

The Southwest Florida Water Management District believes that many of the weaknesses of the current regulatory process identified in the draft report can be remedied more easily and in a shorter time frame than the proposed solution which will take over a decade to implement. Some of the stated weaknesses have, in fact, already been addressed following the previous OPPAGA study on ERP mitigation, but these improvements were not sufficiently recognized.

Examples of improvements which are already completed or underway include:

1. Addition of new statutory language last year regarding cumulative impacts is expected to improve consistency in the regulatory process and provide clarity to regulated and affected interests.

2. Adoption of a new wetland assessment method (anticipated in January 2002) will better determine whether mitigation offsets impacts and track losses/gains by wetland type and function.

Examples of improvements which could be implemented relatively quickly include:

1. Adoption of new watershed boundaries in those areas where this is appropriate. We do not believe, however, that this is a problem in the Southwest Florida Water Management District.

2. Additional guidance for assessing out-of basin mitigation could be promulgated in rule or statute.

3. Revisions to permit tracking and compliance data bases could be made to collect information more pertinent to tracking cumulative impacts. It is anticipated that data bases will be revised to include more information related to wetland type and function following the completion of the new wetland assessment method referenced above.

Issue - The Southwest Florida Water Management District is not in agreement with the adoption of the proposed integrated planning approach.

Page 12 of the draft report states that regulatory agencies "were in general agreement with the adoption of the integrated planning approach." The Southwest Florida Water Management District does agree that better integration of environmental planning and environmental regulation can lead to better environmental protection and greater effectiveness in preventing cumulative impacts. We do not agree, however, with the specific integrated planning approach proposed by OPPAGA. The Southwest Florida Water Management District advocates a more comprehensive watershed management approach to identify and implement effective resource protection strategies.

In closing, the Southwest Florida Water Management District suggests that, given the potential problems and the long time required to implement the proposed integrated planning approach, it should be considered only as a possible starting point for further discussions among all affected stakeholders to achieve better resource protection in the watershed. The specific approach recommended by OPPAGA, if implemented, should be supplemental to the existing level of resource protection provided through the Environmental Resource Permitting program rather than as a replacement for the existing level of protection.

Thank you for the opportunity to respond to the draft report.

Sincerely,

/s/
E. D. Vergara
Executive Director

St. Johns River
Water Management District
Kirby B. Green III, Executive Director • John R. Wehle, Assistant Executive Director

Post Office Box 1429 • Palatka, FL 32178-1429 • (904) 329-4500

August 30, 2001

John W. Turcotte, Director
Office of Program Policy Analysis and Government Accountability
111 West Madison Street
Room 312
Claude Pepper Building
Tallahassee, Florida 32399-1475

Re: Revised Draft Report: "Integrated Planning Approach Needed to Address Limitations in Assessing Cumulative Environmental Impacts"

Dear Mr. Turcotte:

The St. Johns River Water Management District appreciates the opportunity to provide comments on the revised draft report. The attached comments have been prepared by the staff of the St. Johns River Water Management District. We have not been able to present these comments to the District Governing Board, due to time limitations, so these comments are only a staff position.

As you can see from the attached comments, we disagree strongly with the recommendations in your draft report. We believe that implementation of these recommendations would be extremely costly and controversial and is not warranted, given the limited issues associated with cumulative impacts. In 1998, the District's Governing Board created an advisory committee with a membership representing all affected interests, including representatives of environmental groups, development interests, mitigation banks and environmental consultants that commonly prepare mitigation plans. That advisory panel unanimously recommended that the cumulative impact rules of the District not be revised, but only that the drainage basin boundaries be expanded. The District's Governing Board has since implemented this recommendation. That panel also recommended some "non-regulatory" approaches to addressing cumulative impacts which are further described in the attached comments. The intent of the non-regulatory approaches was to work within the current ERP rules (including the revised drainage basins) in a comprehensive approach that did not result in additional changes to the cumulative impact provisions, but instead enhanced and facilitated the application of its requirements while working through other venues to help achieve its goals.

Thank you for considering our comments.

Sincerely,

/s/
Kirby B. Green III
Executive

SJRWMD Response to the draft Cumulative Impacts Review Report

Page 4 - "Continued wetland loss and degradation justifies consideration of cumulative impacts."
While we agree with the result of this finding, we do not agree with the basis. The consideration of cumulative impacts continues to be justified because it is an important component of a regulatory program that has successfully protected the wetland resources of Florida. The report cites a St. Johns River Water Management District analysis that found that 51,300 acres of wetlands were impacted between 1984 and 1994 within this District, and the authors used this to show that substantial acreages of wetlands continue to be lost in Florida. The technical memorandum, which we provided you and from which the datum was obtained, included a section entitled "Error Analysis" which indicated that the loss estimate may be overestimated by several thousand acres (possibly as much as 8,000 or more when totaled). Further, that memorandum indicated that there was also substantial wetland gain, and we believe it would be appropriate to include that figure as well in order to present a complete picture. Approximately 66,000 acres are in some phase of restoration, and approximately 133,000 additional acres are in some phase of enhancement. The preceding numbers are from District restoration projects only and do not include non-District projects, improvements from standard District land management activities, and on-site or off -site mitigation and mitigation banks.

Your revised draft report includes only a footnote which states only part of this information. We believe this unequal treatment of the data leads to a misunderstanding of the state of wetland loss and gain within the SJRWMD. We are confident that you want to clearly and fairly present the facts as you use them to support your conclusions, and we request that you revise this section to include a balanced description. The aforementioned gain in the acreage of wetlands can be attributed to the fact that the Legislature has adopted several acts that have directed the Water Management Districts to acquire and restore environmentally sensitive areas.

Page 4 and corresponding statements on page 5
We disagree with the second finding, that "Weaknesses in design and implementation limit the cumulative impact consideration's effectiveness." As stated above, the current regulatory program has been successful in stemming the loss of wetland resources, and this success is due, at least in part, to the fact that consideration has been given to the cumulative loss of these resources.

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We disagree with the statements made regarding the consideration of exempt activities. We acknowledge that such effects are difficult to precisely quantify and qualify and that specific databases do not exist. However, it is not accurate to say that exempt activities are not currently considered in the cumulative impact analysis. One way in which they are considered is through GIS-based comparisons of historic and present aerials and coverages and the resulting data that are derived from such comparisons.

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The statement is made that "The use of ratios does not explicitly measure the amount of wetland functions lost by the proposed activity or gained by mitigation." This statement, along with

footnote 14, implies that a ratio is simply selected from a range based upon the general quality of the wetland without regard to detailed information. It must first be stressed that the mitigation ratio is not the assessment method and, in and of itself, does not explicitly measure the functions. However, the mitigation ratio is merely the end result of the application of a procedure stated in the rule which does evaluate wetlands and other surface waters according to the factors listed therein. The procedure does result in the collection of detailed and quantified information about functions. For example, the procedure may result in the information that 3 acres of high-quality sandhill crane nesting habitat will be lost and that the proposed mitigation consists of the restoration of 6 acres of high-quality sandhill crane nesting habitat along with 50 acres of high-quality crane foraging habitat. Such information would be used to determine whether the specific function of sandhill crane habitat lost is offset by the proposed mitigation. The report continues to understate the required detailed collection of information and the resultant quantified assessment contained within the current rules.

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The report also implies that the current cumulative impact provisions prevented the use of mitigation banks in many instances and that this constitutes a barrier to the use of meaningful mitigation. We disagree with this conclusion. Mitigating impacts close to those impacts is, in general, responsible management; out-of-basin use of mitigation banks, cumulatively, could result in significant degradation of the donor basin. All of the basins within the SJRWMD have the potential for meaningful in-basin mitigation.

Page 7 – "A methodology for considering cumulative impacts at the individual project level is not available."

We disagree with this statement. The simplest method for addressing cumulative impacts is for an applicant to conduct mitigation offsetting the impacts within the same drainage basin. The Legislature amended the statutes in 1999 to reaffirm this approach and St. Johns River Water Management District amended its rules accordingly. This is the method chosen by the great majority of permit applicants. For those permit applicants that do propose mitigation outside a drainage basin, a case-by-case consideration of the proposed impacts, past impacts and future impacts is provided for in the District's rules. While this is not a simple "cookbook" solution, it is nonetheless a methodology that can and indeed has been used to address the cumulative impact criterion. As mitigation banks and other forms of regional mitigation projects become established in more basins we expect considerably fewer applications for out of basin mitigation.

Pages 8 and 9 – "Changes would add clarity and certainty in applying the consideration, but would not address basic problems."

In our comments above, we have questioned most of the "weaknesses" that OPPAGA believes it has found with the cumulative impact consideration in the ERP program. The one real "weakness" is that there has been conflict between mitigation banker's desires and the statutory requirements regarding cumulative impacts. However, as stated above, we believe that there is ample reason to retain the cumulative impact provisions. In 1999 and 2000, the St. Johns River Water Management District Governing Board appointed an advisory committee to address these conflicts. That panel included representatives of environmental groups, mitigation banks, development interests, environmental consulting firms (companies that commonly prepare mitigation plans for permit applications), the Florida Fish and Wildlife Conservation

Commission, and the Department of Environmental Protection. The advisory panel was unanimous in its position that the only change needed in the District's cumulative impact rules was to enlarge the basins within which cumulative impacts are considered. The District followed through and adopted amendments to the ERP rules to adopt the basin boundaries recommended by this panel.

The panel also recommended that the District's Governing Board approve a set of "non-regulatory" measures for addressing cumulative impacts and to incorporate its specific recommendations into the District's Strategic Plan. This effort was clearly viewed by the panel, the staff, and the Board to be a comprehensive strategy that did not involve additional rule changes, but instead resulted in improved data collection and use, training and coordination of information, outreach programs, and protection strategies. If viewed in a general manner, we understand how OPP AGA could see these measures as support for their recommended planning approach. However, when viewed specifically and in context, the intent was clearly stated in the cover memo to the Governing Board: "***Although the implementation of some of these recommendations may benefit or feed back into the District's regulatory program, they do not involve any changes in rule or policy and, therefore, we consider them to be "non-regulatory" in that sense of the term.*** **"**

Similarly, in response to OPPAGA' s questions about Strategic Objective 1 on page 9 of the SJRWMD Strategic Plan, the intent of the objective is to have a "fully integrated planning and project management approach that ***focuses existing*** [efforts]." The intent was not to inject a new regulatory approach, but rather to bring existing efforts in all areas together in a focused manner under the structure of the District's newly-implemented project delivery management approach to maximize accountability and the use of agency resources while achieving well-focused goals.

Pages 8 through 10 – "integrated planning approach to addressing cumulative impacts should be adopted."

We disagree with this recommendation. We also question whether this would be a reasonable use of taxpayer funds. Basically the problem with cumulative impacts boils down to instances where people want to mitigate outside a drainage basin, usually at a mitigation bank. To respond to these problems (that have all been resolved through the permitting process) the authors recommend revising several statutes, all of the District's water management plans and every comprehensive plan of every local government. We have been involved in a few cases of local governments establishing environmental protections through their comprehensive plans. These were extremely controversial and often involved not only the local government, but also the water management district, Department of Environmental Protection and the Department of Community Affairs. We believe that this recommendation is quite extreme, and we believe it is based on many faulty assumptions, as addressed in our comments above. We would recommend that you reconsider this report and your recommendations.

SUWANNEE
RIVER
WATER
MANAGEMENT
DISTRICT

July 27, 2001

Mr. Larry Novey
The Florida Legislature
Office of Program Policy Analysis and Government Accountability
111 West Madison Street, Suite 312
Tallahassee, Florida 32399-1475

Subject: Response to the Preliminary and Tentative Draft of the OPPAGA Cumulative Impacts Review

Dear Mr. Novey:

The Suwannee River Water Management District (SRWMD), Resource Management Department, has completed the review of the preliminary and tentative draft of the cumulative impacts review. The report was very thorough and explanatory.

As noted in your report, SRWMD is a rural area. Many of our Environmental Resource Permits do not involve wetland disturbance. For those that do, we are able to work with applicants to keep wetland disturbance and, consequently, mitigation to a minimum. However, SRWMD has seen a greater number of wetland projects in the last two years. This report will be a helpful planning tool to us in the future.

SRWMD supports the integrated land use planning approach as suggested by your findings. This will provide very valuable data that will be useful statewide. Due to statutory thresholds, the wetland cumulative impact assessment has been very limited under the Environmental Resource Permitting program.

The staff at SRWMD would like to commend the Office of Program Policy Analysis and Government Accountability for a job well done. If you have any questions or need additional information, please call me at 386.362.1001 or 800.226.1066.

Sincerely,

/s/
Jerry A. Scarborough
Executive Director

JAS/lgw

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