

Executive Summary

Center for a Sustainable Coast

Achieving Healthy Communities, a Thriving Economy & Environmental Quality:

Introduction and Overview to *State of the Coast Report for Georgia*

Now more than anytime in the past 100 years, coastal Georgia stands at a crossroads. As we see thousands of acres of land being developed every year in the eleven counties of this region, more and more people are questioning the accumulating consequences. Public opinions, both formally surveyed and casually observed, express deep concern that the landscape, environmental quality, and character of the coast are slipping away.

Many share the sense that our region is at the mercy of external forces that no authority can control, and which are perhaps inevitable. As coastal Georgia's economy has flourished over past decades, we now seem to be laboring under the momentum of obsolete goals, or at least negligent assumptions about the nature and benefits of growth, and only vague understanding about the choices available to us in moving toward a consciously determined future.

Despite noble intentions, after more than a decade of planning efforts under the Georgia Planning Act most cities and counties continue to passively accommodate, if not welcome, virtually anyone who proposes to build a new project. Decisions about land use and public facilities are shaped by no long-term plan, guided by no vision for our communities or region. Although some may claim that these concerns are unfounded, held by only a margin of environmental extremists, the record suggests otherwise. Consider that three-quarters of the DNR marsh and shore permits appealed over the past twelve years were filed by property owners and developers, not by environmental groups.

Disputes over the use of natural resources, delays caused by permitting decisions and their legal challenge, and conflicts between property-rights advocates and defenders of public interest are yet further indication that we are in a period of crucial change. The future of coastal Georgia could be irreversibly altered through critical decisions made (or not made) in the next 3 to 5 years. Can we afford to continue passively neglecting this challenge by yielding to change on a case-by-case basis, allowing others to determine our region's fate by default? Instead, we urge creating and *implementing* a strategy that galvanizes public policy, political resolve, and entrepreneurial spirit to work toward a shared regional vision served by a multitude of individuals devoted to complementary objectives.

If we are to formulate a successful regional strategy, it must be based not only on general public consensus, but also informed understanding of the scope and nature of the problems being faced by our region. This report is a first attempt to provide an overview of the trends of coastal Georgia's growth, environmental conditions, and implications for the future. Although imprecise and incomplete by virtue of the data and resources available, the report's findings and recommendations are instructive. The State of the Coast Report presents information and analysis to stimulate public dialogue and raise awareness about critically important issues affecting coastal Georgia and its five watersheds. These issues must be responsibly resolved if we are to build the consensus and commitment needed to shape our shared future, using means that are within our grasp. We urge all concerned citizens, decision-makers, and other stakeholders to review and comment on our report.

Historic Perspective

For nearly a century following the Civil War, coastal Georgia suffered economically and socially. Between Reconstruction and World War II, this region's income, employment, education, and general prosperity lagged behind most of rest of the nation by a large margin. By the early 1950's a number of factors converged to reverse the historical trend, but these took several more decades to achieve significant effect.

- ▶ Beginning in the 1930s, pulp and paper manufacturing research had developed a process for using the more resinous but faster growing southern pine as the main source of fiber in making paper, which had been infeasible until then. This opened unprecedented opportunities for forest products in the southeastern United States, and along with that demand came thousands of jobs in forestry and manufacturing.

- ▶ Urbanization boomed following the Second World War, and affordable mortgages for new homes were readily available to thousands of eligible veterans.
- ▶ Land and labor were cheaper in the South and energy costs were lower for expanding industry.
- ▶ Domestic military facilities at Hunter (Chatham County), Fort Stewart (Liberty, Long, and Bryan Counties), and Kings Bay (Camden County) provided great economic stimulus. From 1950 to 1990 military and civilian defense jobs in the region grew by more than 70%.
- ▶ Federal civil rights legislation gradually improved living conditions and economic opportunities for African Americans from the South, who returned to their families' native state in vast numbers.
- ▶ Extensive improvement of the federal highway system and federal subsidy of state roads resulted in far greater mobility, in combination with vastly expanded trucking transport. Both within the state and beyond, this brought together people and markets with advanced flexibility and speed.
- ▶ As international trade grew, demand for ports sustained commerce in coastal areas. With the advent of containers used in shipping and thriving demand for foreign-made products, the two coastal Georgia ports at Savannah and Brunswick enjoyed unprecedented growth in both volume and value of commodities handled. World demand, U.S. trade and agricultural policy, and farming productivity also favored export of Georgia's rural products.
- ▶ The Sunbelt phenomenon took hold as air-conditioning became more affordable while millions of Northerners reached retirement age, and as expanding businesses moved south. No other urban area epitomized the impacts of these factors more than Atlanta, where metropolitan population grew from less than a half million in 1970 to more than 3 million by 2000. And as Atlanta became the economic "engine" of the state, it had enormous trickle-down effect on the rest of Georgia – both favorable and adverse.
- ▶ Coastal growth rates nationally have outstripped other geographic areas, and (with the exception of Atlanta's metropolitan area) Georgia is no exception. Fully 60% of the nation's population lives within 50 miles of an ocean or one of the Great Lakes, and that portion of total population is projected to grow as high as 80% within 20 years.
- ▶ The national transition to a service-based economy has considerably supplemented the economy and growth prospects of coastal Georgia, which thrives on a tourism industry valued at more than \$2 billion annually. Many service businesses also depend on labor markets that fit this region's profile, and these jobs are more than compensating for the loss of manufacturing employment.

All of these trends compounded and interacted to produce remarkable changes for coastal Georgians in the half century from 1950 to 2000. As beneficial as many of these changes have been, they are not without adversities. Among these are the loss of historic character and natural landscapes; a troubling sense that rampant growth and economic advancement have disrupted our communities and increased stress while imposing demands that weaken control over our own lives; and, underlying these losses, the reduced capacity and quality of certain natural resources, despite efforts to protect them under state and federal laws.

Surveys report that increasing numbers of Americans in general, and Georgians in particular, are concerned about the quality of the air they breathe, the water they drink, and the health and security of their families. These issues also heighten the importance of political decisions influencing business growth, income and job creation, education, public health, and other factors that provide incentives and penalties (or at least obstacles) for various segments of the population in their pursuit of individual opportunities. As population and urbanization expand, it is inevitable that conflicts result over the use of natural resources, trade-offs between advocates of private property rights and public interest, and the implications of choices available to voters, workers, and consumers. One important objective of this report is to stimulate and inform public dialogue that is essential to making responsible decisions representing the diverse interests of our citizens and the needs of future generations.

Summary of Environmental Risks in Coastal Georgia

► ***Rapidly expanding areas of disturbed landscape, including use of poorly drained and unsuitable areas.***

Driven by rising affluence of residential markets and growing use of cars, the land area needed to support a given number of households has substantially increased in recent decades. Although regional studies have not been done here, nationally the acreage of land development has increased at more than double the rate of population growth over the past 30 years.* Compounding this problem, since many of the highest and best-drained areas of coastal Georgia were developed first, new growth tends to occur in areas prone to periodic flooding (or requiring more filling), with higher potential for pollution from non-point sources such as yard chemicals and septic systems.

*Note: Due to large areas of the region in use for commercial forest and extensive public lands, overall population density is quite low and increasing only moderately; however, area of newly developed land is expanding faster than population growth, resulting in disproportionate burden on natural resources.

► ***Mounting threats to property from exposure to erosion, flooding, and storms, with related public costs.***

Development of marginal lands and of scenic marshfront and shorefront areas that are often preferred for homesites introduces heightened risk to both property and natural resources. Attempts to control natural forces such as flooding and erosion (bulkheads, seawalls and jetties), can not only fail to work, but also may actually accelerate related problems in adjacent areas while substantially raising the public costs of new growth – such as extensive drainage systems, revetments, and other efforts to stabilize shorelines. Erosion and erosion-control structures can also harm aquatic and marine habitat. A national study indicated that the dollar value risk of property loss from storm surges is far greater in the Southeast than in any other region of the country, and rapidly increasing.

► ***Critical limits on water supply for both urban and rural needs, raising disputes among various user groups.***

As evidenced by the rapid rise in the number of news articles and other media coverage of water issues in recent years, aggravated by regional drought since 1998, this vital natural resource has become critical to development decisions. Though many Georgians are aware of the ‘water wars’ between Georgia, Alabama, and Florida, too few realize that similar battles are raging within the state. Ironically, many internal Georgia conflicts parallel the external interstate ones. For example, water needed to sustain the growth of Atlanta and other metropolitan areas may be taken from rivers and aquifers historically available to rural and other downstream regions. This is of particular concern in coastal Georgia, which is at the downstream end of five watersheds that encompass more than 60% of Georgia’s land area. If coastal Georgia loses significant water supply and/or water quality due to continuing growth elsewhere in the state, both our economic prospects and quality of life will suffer.

► ***Lack of understanding about ecosystem functions and their value are adding risks to human health and business potential.***

There is perhaps no other region of Georgia that is more dependent on the health, diversity, and productivity of natural resources than the coastal area. Our 250,000 acres of tidal wetlands, a considerable portion of the remaining salt marsh on the Atlantic seaboard, is highly important to the fisheries of the state and nation. Actions that reduce the flow of fresh water to our estuaries, or that otherwise impair water quality here, could bring disastrous consequences – including the loss of many jobs and much income, as well as future business growth. With recreational and commercial fishing alone supporting an estimated 20,000 jobs and over a half billion dollars a year in commerce here, it is abundantly clear that protecting natural resources is a major business interest. Beyond this is the troubling record of this region’s exposure to toxic materials (such as mercury, PCBs, dioxins, and petrochemicals related to wood preserving, chemical manufacturing, and other industrial processes), each of which present serious health risks that are largely unrecognized by the affected populations.

► ***Increasing discharge of contaminants into air and water, threatening human health and nature-based business.***

Contrary to common belief, although more activities affecting the environment are regulated than ever before, because the number of permitted activities is far greater, the total amount of pollutant discharged into air and water is often higher than in the past. With the urbanization of Georgia, according to EPA's *Toxic Waste Inventory*, in the ten years from 1989 through 1998, the amount of toxic chemicals entering Georgia waters rose by more than 80%. This computation only includes permitted (regulated) releases, not non-point source pollution or any other form of broadcast pollution, such as atmospheric deposition released in other states – air pollution that contaminates Georgia's land and water, carried by wind, from industries up to hundreds of miles beyond our state line. Moreover, the ten-year comparison does not account for new toxins that were not formerly used or controlled.

► ***Accelerating impacts of public facilities (water & sewer lines, roads, etc.) needed to support continuing growth.***

Analysis of development trends often underestimates or overlooks the impacts of public facilities that are needed to support development. For example, a number of important environmental violations in Georgia have been caused by improperly maintained or operated municipal sewage treatment plants. Although no comprehensive study has been done, it is commonly believed that many water pollution problems are also caused by domestic septic systems that are inadequately designed, installed, or maintained. Similarly, ditching done to control flooding and/or mosquitoes can aggravate the adverse effects of development by reducing the natural functions of wetlands, including flood control, water filtration, and moderation of stream flow needed to support fish and wildlife.

► ***Displacement of traditional neighborhoods and cultural groups due to increasing property taxes.***

With the rise in market value of land, tax assessment adjustments result in higher taxes even if tax rates remain unchanged, and over time property tax increases can be substantial. The average value of land in many coastal communities has quadrupled in the past 20 – 30 years, rising at a much higher rate than many family incomes. For those with modest or fixed incomes, the only solution may be to sell land that has been in their family for generations. Not only does this trend deprive historically established groups of their rightful heritage, but it also reduces the racial and cultural diversity of our communities – producing social homogenization that diminishes the quality of life.

Environmental Justice Considerations

Issues of water quality and environmental contamination invariably include aspects of environmental justice, since low income citizens are more likely to live in areas of greater exposure risk. In coastal Georgia, many families of low to moderate income depend on locally caught seafood for nourishment and they eat proportionally more local fish and shellfish than families with higher incomes. In addition to many “fish consumption advisories” in coastal Georgia, there are several fishing prohibitions in local waters that have been contaminated by site-specific hazardous materials. Despite efforts to restrict or prohibit human consumption of such fish, lower income people continue to catch and consume them, adding significant threats to their health. Thus, environmental problems can have adverse distributional effects that impose a greater burden on some segments of the population than others.

Similarly, many lower income families use shallow wells for their drinking water. Such wells are far more susceptible to contamination from toxic materials and other harmful waste than deeper wells. Shallow wells in the vicinity of hazardous sites, leaking septic systems, illegal dumping, and a variety of commonly used chemicals (such as fertilizers, herbicides, and pesticides) are in danger of health-threatening contamination. In Glynn County, residents in the area of a now-abandoned wood treatment facility are still at risk despite extensive efforts over many years by local activists to induce state and federal regulators to improve protection of groundwater from known contamination.

Another factor in this issue is the proximity of low-income neighborhoods to industrial activities that are continuing sources of contamination, including air pollution. In Brunswick and Savannah, grassroots organizations have been confronting industrial polluters and state regulators for many years, gradually increasing attention to these issues. Respiratory illnesses and premature deaths are believed to be linked to excessive exposure to stack emissions in residential areas close to industrial sites, at least some of which are alleged to be in violation of federal standards under the Clean Air Act. Presently there is a legal action being taken against EPA claiming failure of the state's Environmental Protection Division to properly enforce these standards in issuing an air emissions permit to an industry in Brunswick.

As further documented in this report, there are ample reasons for concern about contaminants in our environment and other risks to natural resources that are likely to lead to further legal actions on behalf of the public. Such actions are often necessary because existing regulations are not properly interpreted and enforced, especially when the adversely affected population is politically weak and economically disadvantaged.

Preventative Measures Are Better Than Damage Recovery

It is the assumption in this report that early assessment and pre-emptive actions are preferable to delayed response after environmental risks have substantially increased. This assumption is based on several reasonable arguments:

- If appropriate action is delayed until incontrovertible evidence is available, damage to the environment and human health are likely to be greater, possibly much greater, than if a more proactive approach is taken.
- Although the capacity of the environment to absorb and recover from contamination and other forms of abuse is often unknown, it is certain that there are limits. Once these limits are exceeded, not only will human health suffer, but the costs of environmental restoration will be enormous, assuming recovery is even possible. Engineering substitutions for natural functions like flood control, water storage and filtration, and waste assimilation are extremely expensive and not always feasible.
- As documented in this report, the coastal Georgia economy derives much of its vitality from the area's natural resources – including healthy marshes and estuaries, native forests, and a diversity of fish and wildlife that generate millions of dollars in business annually. Moreover, further diversification and development of the regional economy depends on responsible use and conservation of natural resources. Taking appropriate pre-emptive measures to protect and conserve the coastal environment is therefore in the interest of:
 - (1) human health,
 - (2) quality of life, and
 - (3) nature-based business, now worth at least \$ 1 billion annually and steadily increasing.

Instead of playing a passive role and waiting until scenic quality, human and environmental health, and/or nature-based business suffer the consequences, it is far more responsible to use preliminary analysis to guide public policy toward a more desirable future. This report is intended to assist decision-makers, community leaders, and concerned citizens by providing such guidance and urging attention to these vital issues.

Findings

1. Growth & Development

- Coastal Georgia's population will double to a million or more within 30 years.
- Developed land is still a small portion of region's geographic area.
- Building sites in developing areas are vulnerable to flooding, storm surges, environmental harm
- Services dominate economic development trend, including tourism and nature-based activities.
- State growth patterns and intensity inland from the coast is a risk to the coastal environment.
- Along with the current population growth there is increasing pressure by both the public and private sectors for more visitation to, and entrepreneurship on, state and federally managed islands.

2. Environment

- Water quality is still a problem – due to both point and non-point source pollution.
- Water demand throughout the state imposing unprecedented demand on resources.
- Wetlands are being lost, largely due to questionable interpretation of Supreme Court ruling.
- Though sampling and data are limited, toxic contamination of air, land and water remains a problem and the trends are risky.
- Salinity increases in inter-tidal areas and water contamination present risks to fish and human health.

3. Public Opinion and Environmental Education

- Coastal Georgia citizens are concerned about growth trends and implications for their environment.
- Majority of survey respondents gave Georgia low rating for regulatory enforcement.
- Environmental education is seen as important to resolving issues of growth and resource protection.
- Environmental ethic is advanced by education, but far more education is needed.
- Expressed support for environmental policy is not reflected in consumer and voting behavior.

4. Research, Monitoring, and Assessment

- A variety of important research is being done, but much more is needed.
- There are major problems in structuring and translating research for application in public policy.
- Promising initiatives are being taken to apply “sound science” in policy, but funding is in jeopardy.
- Improved understanding of ecosystem capacity is critically needed to support human demands.
- Data for analyzing trends is inconsistent and patchy – numerous sources, varying methods.
- Environmental monitoring and assessment, both general and specific to permit enforcement, is seldom linked to research, despite great potential for improving both.

5. Public Policy and Administration

- State budget for environmental protection and research is insufficient and declining relative to need.
- State policy tends to be dominated by perceived economic interests, often based on misinformation.
- Political influence tends to override science and rational precaution in local and state permitting and related policies.
- Regulation and environmental analysis are overly fragmented, lack necessary comprehensiveness.
- Environmental monitoring and assessment are not adequately used in refining environmental standards and procedures.
- There is too little recognition of the economic value of environmental resources and functions.
- Understanding about private and common (public) property rights is inadequate, distorting many decisions affecting the use and condition of natural resources.
- More opportunities are needed for public dialogue about development, trends, implications, and options.

Recommendations

Making Coastal Georgia's Future More Sustainable

- 1. Improve use of information** in environmental monitoring, enforcement, and response under current laws.
 - Expand existing sampling of water, sediments, and fish to achieve more comprehensive assessment.
 - Ensure environmental permitting review and ongoing assessment with adequate funding of DNR/EPD.
 - Report all results of resource sampling and permit monitoring in media in readily understandable language.
 - Alert potentially affected residents and property-owners about permit violations and substandard conditions.
 - Use results of monitoring and regulatory permit review as guidance for environmental research priorities.
- 2. Build stewardship into environmental regulations** – protect resources using standards based on goals for desired conditions (i.e., fishable & swimmable waters), instead of merely minimum legally acceptable limits.
 - Use best possible science to determine instream-flow requirements for healthy ecosystem support in rivers and estuaries – under all conditions, including drought – and apply uniformly as standards for permit decisions.
 - Restore wetland functions on forestry and agricultural lands – using proven best management practices.
 - Implement a comprehensive water conservation program, including further reductions by major user groups.
 - When impact assessment information is inconclusive but conditions are risky, permits should not be issued.
- 3. Base future development on more complete assessment** of soils, hydrological characteristics, habitat and other ecosystem features.
 - Base land use decisions on comprehensive planning and environmental factors, including greenspace needs.
 - Get serious about implementing soil erosion controls – with better local tech support, penalties for violators.
 - Adopt land-use ordinances that encourage use of landscape buffers, control of impervious surfaces.
 - Diversify and monitor economic development within the limits of environmental support capacity.
 - Promote compatible nature-based business based on assessment of markets, environment, and job needs.
- 4. Develop and implement local and regional environmental indicators** based on the assessment conducted in this report. Ideally, indicators will be created by a coalition of stakeholder representatives assisted by environmental professionals from universities, public agencies, and non-profit organizations. (See *Measuring Environmental Quality and Quality of Life*, [next page](#).)
- 5. The State should take measures to verify the accuracy of water use** reporting that includes water consumption and water return figures while developing sound water policies for the energy industry.
- 6. Create and promote public programs in environmental education at all levels** – preschool through college – and in a variety of public forums on a regular basis.
- 7. Establish a comprehensive program for surveying citizens about their use and valuation of natural resources**, and report findings in area newspapers, broadcast media, and public forums.
- 8. Develop a regional plan and strategy for identifying, acquiring, and managing conservation areas** based on assessment of scenic quality, ecosystem functions, and vulnerability to development trends.
- 9. Promote responsible diversification of the nature-based economy** through research, tax incentives, technical assistance, and start-up assistance, based on a continuing, broad-based participatory process for analyzing trends, revising policies, and evaluating development alternatives.
- 10. Establish a regional board for improving review and transfer of environmental research into public policy** and to evaluate and recommend needed changes in all related public policies.
- 11. Research and assess potential for ecosystem restoration**, determine feasibility and priorities, and adopt program for restoring health of identified areas that have been compromised or degraded.
- 12. Identify, protect and support a network of high-quality state research reserves** strategically located to provide scientists with ecosystem-level baseline information and experimental sites that are required to achieve the best possible scientific information to guide legislative and management actions in coastal Georgia.

Measuring Environmental Quality and Quality of Life

To improve understanding of environmental conditions, development options, and their consequences, environmental professionals have developed an adaptive approach using performance measures, sometimes called “sustainability indicators” or “smart growth indicators.” (*Note: Environmental scientists should be involved in developing and interpreting environmental indicators. See Appendix— Quality Growth Indicators.*)

Such indicators can be developed for particular ecosystems, such as estuaries, for a single human community or county, or for a metropolitan area or region. In each case, the indicators selected are based on goals for improving conditions in the chosen geographic area, combined with practical considerations about the availability of existing information, costs of acquiring new information, and the reliability of such information in measuring characteristics relevant to stated goals.

Effective indicators are:

- **relevant**; they show you something about the system that you need to know.
- **easy to understand**, even by people who are not experts.
- **reliable**; you can trust the information that the indicator is providing.
- based on **accessible data**; information is available or can be gathered while there is still time to act.

Examples of environmental indicators include*:

- ▶ Vehicle miles traveled in ratio to population
- ▶ Tons of solid waste generated
- ▶ Percent of products produced which are durable, repairable, or readily recyclable or compostable
- ▶ Volume of combustible fuel consumed
- ▶ Total non-renewable energy used from all sources
- ▶ Ratio of renewable energy used at renewable rate compared to nonrenewable energy
- ▶ Amount of land developed in ratio to population
- ▶ Percent of waters sampled that are contaminated

[* This list excerpted in from *Guide to Sustainable Community Indicators.*]

Indicators can be adopted to incorporate social and economic goals as well as strictly environmental ones. For example, consider the following:

- ▶ Number/percentage of adults with high school diploma; technical training; college degree other.
- ▶ Percentage of local earnings spent within the community
- ▶ Portion of economy dependent on material or energy imported
- ▶ Crime rate and number – violent, non-violent.
- ▶ Distribution of income and property ownership by race, national origin.

Recommendation for Tracking Coastal Georgia’s Progress

Based on the assessment conducted in this report, we recommend that a set of environmental indicators be developed for the coastal region. We further recommended that these indicators be established by a coalition of individuals representing the diverse interests of coastal Georgia, including property owners, entrepreneurs (especially those in nature-based business), educators, recreational fishing enthusiasts, local and state elected officials, conservationists, and many other groups. Once an initial set of indicators is agreed upon, a plan should be developed for implementing them on a trial basis through a plan adopted by collaborating participants, such as: cities and counties, schools and colleges, homeowner associations, and non-profit organizations. This work should be coordinated by an appropriate public agency or qualified environmental professional under funding allocated especially for this work.

Over time, indicator values should then be evaluated and compared with valid sampling of public opinions about the goals and resources in question. Based on this analysis, indicators should then be refined or replaced as justified. As funding allows and results justify it, the use of indicators should be expanded and integrated into a formal evaluation process and reported to the public at least once annually.