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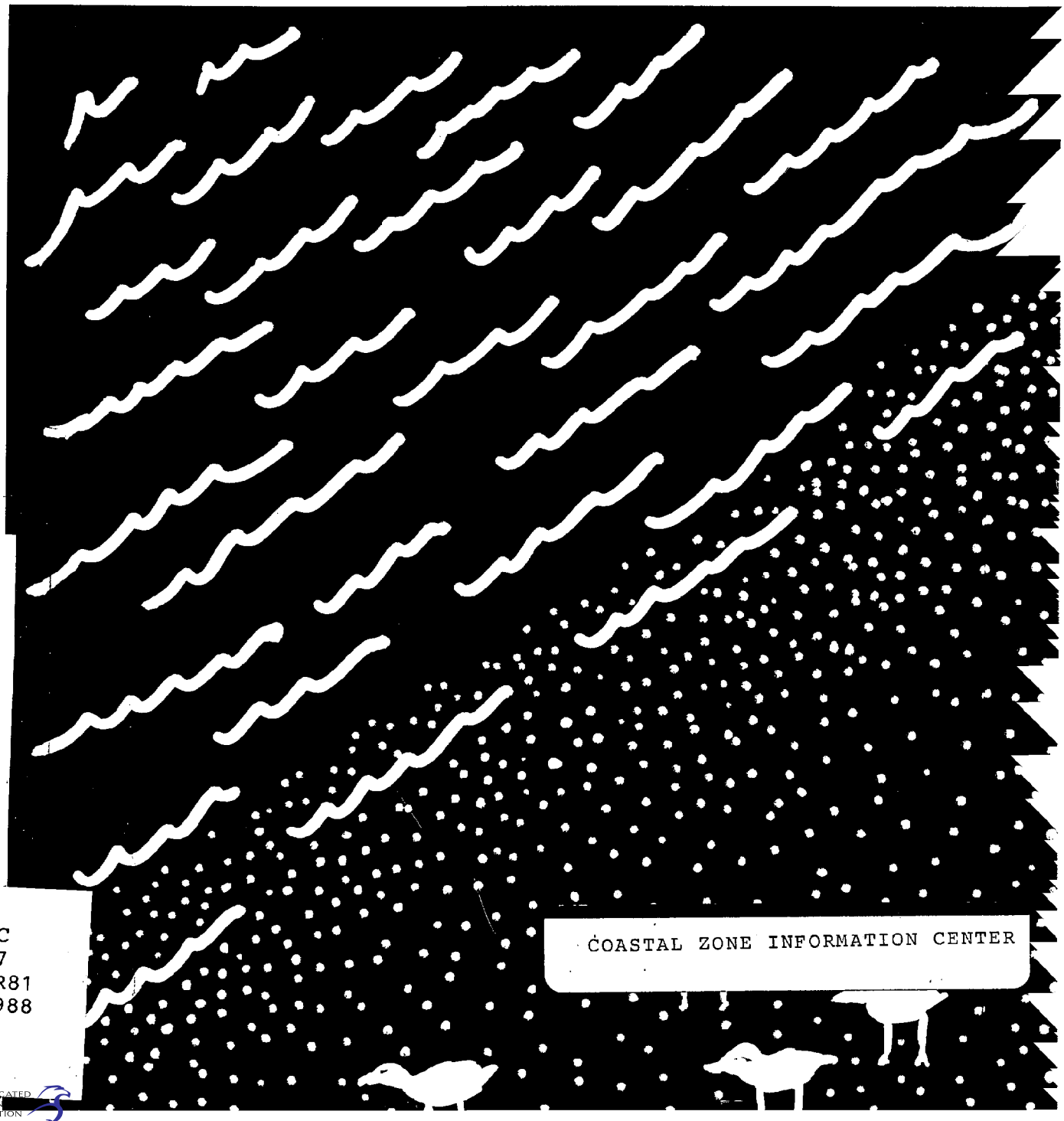
Financing Marine and Estuarine Programs: A Guide to Resources



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Financing Marine and Estuarine Programs: A Guide to Resources

by

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Executive Summary

Under the U.S. Environmental Protection Agency's (EPA) National Estuary Program, state resource managers, town planners, and local administrators jointly develop plans to protect our coastal waters and preserve the living resources of our estuaries. Based on past experience, these plans are expected to call for a broad range of resource protection and management activities, including the construction or improvement of sewage treatment plants, implementation of nonpoint source control programs, collection of data, and restoration of fish and shellfish habitat.

Implementing these technical plans to their fullest potential requires significant financial resources. The National Estuary Program provides funds only to develop recommendations, not to actually implement activities or, for example, to actually build a wastewater treatment plant. To move from planning to action, therefore, resource managers must understand and promote the myriad of financial mechanisms available to support their cleanup programs.

This three-part document, Financing Marine and Estuarine Programs: A Guide to Resources, will help estuarine and marine managers understand the concepts and terminology of public finance, and secure the funds needed to support restoration and protection programs. The first part of the report, the financial primer, introduces basic financing concepts and explains the initiatives needed to begin financial planning for long-term resource management activities. The second part, the case studies, provides specific examples of how some towns and cities have raised money to solve specific water quality problems. Finally, the glossary serves as a quick reference to the financial terminology that managers unfamiliar with financial planning need to understand.

The primer focuses on the three fundamental components of financial planning: (1) accessing revenues; (2) managing the flow of funds; and (3) building institutions to oversee financial planning and management. Sources of revenue--the various taxes, fees, and assessments--are presented in terms of

their advantages and disadvantages to fund estuary programs. Next, the primer discusses typical ways to link sources and uses of funds, and the institutions that preside over these programs. Managers can use the information in the primer to efficiently choose sources of revenue and ways to manage financing programs.

The case studies demonstrate the use of financing tools, financial management mechanisms, and management institutions capable of raising revenue for a wide range of projects. The 10 case studies discuss how various local, state, and special-district governments successfully used the financial mechanisms presented in the primer and other more innovative mechanisms to finance resource protection and other programs.

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Part I. The Financial Primer

Chapter I

The Financial Primer

INTRODUCTION AND OVERVIEW

Financing public programs would be easy if resources were unlimited. But because they are not, and because decision makers constantly face trade-offs among alternative investments, the competitive edge in finance rests on information and creativity. All program leaders, including estuarine and marine managers, can compete successfully for limited funds if they understand the basic principles of public finance. Armed with the tools to raise revenues equitably and efficiently, resource managers are more assured that well-structured technical plans will be set in motion.

This primer will familiarize natural resources managers with the concepts and jargon of public finance. The primer reviews the basic components of public finance, provides examples relevant to estuary protection, and discusses how techniques are applied in the field. Together, the primer, the case studies, and the glossary provide enough background so that estuarine and marine managers, working with the finance community, can create the financial plans needed to ensure that cleanup programs are fully implemented.

Matching finance options to restoration and protection activities is based on efficiency, equity, and institutional feasibility.[1] A finance option is well-matched to an activity if

---

[1]In a democratic society, public expenditures, whose funding is both limited and collectively owned, should ideally accord with public needs, values, and priorities. Funding for estuary cleanup, for example, must be judged more worthwhile than the use of the same funds for some entirely different purpose, such as education. This primer does not address the question of purpose, such as education. This primer does not address the question of allocation of public funds among competing uses. Rather, it focuses on a variety of possible techniques for financing estuary and marine programs, assuming that the decision to fund such programs has already been made.

no other alternative would raise revenues at less cost; if the recipients of program benefits also pay its costs; and if there are no overriding legal, institutional, or practical impediments standing in its way. If a restoration or protection activity involves pollution control or contaminant removal, both equity and efficiency are served if the polluter is assessed the costs of these initiatives.

A program to control rural nonpoint source pollution, for example, could be financed appropriately with acreage-based fees that are handled with a dedicated fund and administered by an agricultural drainage district composed of neighboring counties. A public education program, on the other hand, might be more equitably financed with general revenues (because the benefits are more dispersed) controlled by local or state legislatures. Restoring shellfish habitat could be financed with the proceeds of shellfishing licenses, auctioned to the highest bidder. These fees could be collected each year by a state or county shellfish manager and held in interest-bearing accounts until used.

MATCHING FINANCIAL TECHNIQUES TO RESTORATION AND PROTECTION ACTIVITIES

The tools of public finance are designed to tap the principal source of revenue: personal wealth. One of the most important skills, therefore, is matching these tools to the initiatives they must finance in efficient, equitable, and creative ways. Tables 1 and 2 summarize the relationships between the components of public finance and a selection of technical programs frequently promoted in marine and estuarine plans. Arranging the financing for these technical initiatives requires consideration of three fundamental components: choosing tools to access revenues; establishing mechanisms to manage the flow of funds; and creating the institutions for financial management.

Accessing Revenues

There are an almost infinite number of ways to secure revenues. The most common forms include taxes, user fees, intergovernmental grants, and debt. Different kinds of taxes are best suited to finance different types of activities, but a good rule of thumb is that property and sales taxes finance activities that benefit entire communities, whereas user fees are appropriate to raise funds from select groups of beneficiaries. Commodity taxes on cigarettes, liquor, or gasoline

TABLE 1
LINKS BETWEEN FINANCIAL AND TECHNICAL COMPONENTS:
POLLUTION CONTROL

LEGEND Fully Applicable ■ Partly Applicable ◪ Inapplicable □	Municipal Point Source Control	Industrial Point Source Control	Industrial Pretreat-ment	Urban Nonpoint Source Control	Rural Nonpoint Source Control	Control of Land Disposal Facilities	On Site Septic System Control	Combined Sewer Over-Flow	Marine Discharge	Pollution Spill Response
FINANCIAL TOOLS										
Intergovernment Aid	◪	□	□	◪	◪	□	◪	◪	□	■
Property Taxes	◪	□	□	■	■	□	◪	■	□	□
Sales Taxes	◪	◪	◪	◪	◪	◪	□	◪	■	□
Income Taxes	□	□	□	□	□	□	□	□	□	■
User Fees	■	■	■	◪	◪	■	◪	■	■	◪
Private Capital	◪	■	■	□	◪	■	□	◪	□	□
Short-Term Debt	◪	◪	◪	◪	◪	□	□	◪	□	□
Long-Term Debt	■	■	■	■	■	□	□	■	□	□
Tax Credits	■	■	■	□	□	■	◪	■	□	□
Impact Fees	■	□	□	■	■	□	□	■	■	■
Tax Increments	□	□	□	◪	■	□	□	□	□	□
ALLOCATION MECHANISMS										
General Fund Appropriation	◪	□	□	◪	◪	◪	□	◪	□	■
Enterprise Fund	■	□	□	■	■	◪	□	■	□	◪
Revolving Fund	■	◪	◪	■	■	□	◪	■	□	□
Bond Bank	■	□	□	■	◪	◪	□	■	□	□
MANAGEMENT INSTITUTIONS										
Federal Agencies	◪	□	□	□	□	□	□	◪	□	■
State Agencies	◪	□	□	◪	◪	◪	□	◪	◪	■
Local Government	■	◪	◪	■	■	■	◪	■	□	■
Basinwide Commission	□	□	□	□	■	□	□	□	■	□
Assessment Districts	■	□	□	■	■	□	■	■	□	□
Regional Authorities	■	□	□	■	■	■	◪	■	□	□

TABLE 2
LINKS BETWEEN TECHNICAL AND FINANCIAL COMPONENTS:
LIVING RESOURCES, MONITORING, AND INSTITUTIONAL MANAGEMENT

	Living Resources			Monitoring & Data Control		Institutional Management			
LEGEND Fully Applicable ■ Partly Applicable ◪ Inapplicable □	Fisheries Enhancement	Habitat Restoration	Sediment Detox-ification	Ambient Monitoring	Data-Base Management	Regulatory Programs	Public Education	Public Partici-pation	Inter-Governmental Coordination
FINANCIAL TOOLS									
Intergovernment Aid	◪	◪	◪	◪	◪	◪	■	■	□
Property Taxes	■	■	■	□	□	□	□	□	◪
Sales Taxes	□	□	□	◪	◪	□	□	□	◪
Income Taxes	◪	◪	◪	□	□	□	□	□	□
User Fees	■	◪	□	□	□	■	□	□	□
Private Capital	□	□	□	□	□	□	□	□	□
Short-Term Debt	◪	◪	□	□	□	□	□	□	□
Long-Term Debt	◪	◪	□	□	□	□	□	□	□
Tax Credits	□	□	□	□	□	□	□	□	□
Impact Fees	◪	◪	■	□	□	◪	□	□	□
Tax Increments	■	■	■	□	□	◪	□	□	□
ALLOCATION MECHANISMS									
General Fund Appropriation	■	■	■	■	■	■	■	■	■
Enterprise Fund	■	■	■	■	■	□	□	□	□
Revolving Fund	■	◪	□	□	□	□	□	□	□
Bond Bank	◪	◪	□	□	□	□	□	□	□
MANAGEMENT INSTITUTIONS									
Federal Agencies	◪	◪	◪	□	□	■	◪	◪	■
State Agencies	■	■	■	■	■	■	■	■	■
Local Government	■	■	□	■	□	◪	■	■	■
Basinwide Commission	■	■	■	■	■	□	◪	■	■
Assessment Districts	■	■	□	□	□	□	□	□	■
Regional Authorities	■	■	□	◪	□	◪	■	■	■

have generated considerable sums to support environmental protection programs in several parts of the nation. User fees charge the beneficiaries of a protection program their proportionate share of the program's cost. Pollution fees do the opposite--they charge polluters in direct proportion to their discharges.

Debt financing--issuing municipal bonds--is an effective way to raise large sums of capital to finance the construction of a pollution control facility and pay for it with taxes or fees over its useful life. Innovations in capital access have focused on attracting private capital to joint public/private ventures. New ways to capture the value created by public investments also appear promising. A cleaner environment stimulates regional growth, attracts additional investment, and supports community well-being. A small down payment to restore the beauty of a bay can yield long-term returns to help repay that original investment.

Managing Revenues

Implementing a cleanup program successfully depends on the availability of adequate funds at appropriate times. Although some cleanup activities (for example, construction of a stormwater control basin) require "lumps" of capital initially, others require annual budgets to support ongoing activities. In the latter case (maintaining a water quality monitoring network, for example) financing must become an ongoing activity. This method of raising funds requires some way to accumulate and disburse funds as well as an institution to preside over these activities.

The most common financial management mechanisms are budget processes that collect general revenues and appropriate funds to government programs on a regular basis. Relying on legislatures for continuing support, however, can jeopardize program continuity.

Instead, many managers have sought stability in more permanent financial management mechanisms such as enterprise funds, dedicated trust funds, bond banks, or revolving loan funds. Enterprise funds and dedicated trust funds "earmark" and control taxes or fees to finance a single, self-supporting activity. State bond banks use the proceeds from their own bonds to purchase less marketable, local bonds at a savings to participating localities. Once capitalized, revolving loan funds can lend money for local cleanup projects at below-market rates. As the initial loans are repaid, the fund is replenished, enabling new loans for additional projects year after year.

Building Institutions

Because estuarine cleanup efforts can involve many political jurisdictions within a state, or even several states, the most appropriate institutions to enact financial management plans may be special-purpose districts. These public authorities take many forms, but they are generally created to accomplish unified goals, such as stormwater management, irrigation, interstate pollution control, or regional water and sewer services. Frequently, these authorities are empowered to levy taxes, collect revenues, borrow against income, and manage their resources. Such districts have been particularly successful in addressing inter-jurisdictional problems in finance as well as resource management.

Of course, no single matrix could possibly meet the needs of all local situations. Yet the concepts of securing adequate revenues, handling the flow of funds, and retaining public support for continued financing are widely applicable. Combining all three components in a financial plan provides the catalyst often needed to move a technical study off the shelf and into the hands of decision makers.

Chapter II

Tools To Access Revenues

Financial tools establish a flow of funds from sources to uses. Accessing capital, which involves choosing a source of revenue and a way to tap it, generally alters current or future public wealth in time or location. The following sections discuss the basic characteristics of five tools to access capital: levying taxes, collecting fees, securing intergovernmental transfers, issuing municipal bonds, and attracting (or extracting) private capital. The usefulness of each depends on the individual investments, project costs and benefits, and explicit acknowledgement of financial risks.

The two most conventional tools to raise revenues include the levying of taxes and the assessment of fees. The third basic tool--issuing public debt in the form of bonds--although also common, is a variant on the first two. Bonds accumulate revenues "up front" and promise the repayment of interest and principal over a period of years, usually with tax receipts or revenues from the collection of fees.

Intergovernmental grants are also variants on taxes or fees. The grants redistribute revenues collected by one level of government, the donor, to another, the recipient. Had the donor not collected the taxes or fees in the first place, the recipient government would have been able to do so.

Using tools imaginatively is sometimes called "innovative financing." The creative variants on taxes, fees, and debt include the issuance of specially packaged municipal bonds, impact fee systems and tax increment schedules to tap private capital, and voluntary privatization arrangements in which public/private partnerships are formed to raise revenues jointly.

TAXES

Taxes provide more than three-fourths of all government revenues[2], and have been used successfully by cities, counties,

[2] Based on Bureau of Census data, Government Finances in 1984-1985.

and states to fund projects that protect the coastal environment. There are three broad categories of tax bases: income, property, and consumption (sales). Income taxes are particularly well suited to finance broad-based, national programs such as defense or social welfare.

They may be less well suited for environmental management programs. The second two bases, property and consumption, are better suited to fund projects whose benefits accrue regionally, even though, in practice, there is sometimes little connection between tax bases and target groups.

In general, taxes are calculated using different formulas, or tax rates, on different bases. Tax rates are simply unit charges per unit of base. There are two general types of rate structures: (1) fixed rates for each unit of tax base (for example, a gasoline tax of five cents per gallon), and (2) ad valorem rates expressed as a percent of the value of the tax base (such as property taxes of $1.20 for each $100 of assessed property value). In addition, tax surcharges are often levied temporarily to raise money for a particular task.

Income Taxes

Because they generate revenue for broad-based public programs, such as welfare and social security programs, the primary economic value of income taxes is their ability to distribute income from the wealthy to less wealthy recipients. The federal government thus relies on this source for the majority of its revenues. Income taxes are candidates for funds to restore or protect estuarine and marine waters only to the extent that legislatures choose to support such programs from general revenues.

Property and Sales Taxes

Of all levels of government, states show the heaviest dependency on sales taxes. Property taxes are the most popular form of local tax. A beach erosion control program, for example, might be equitably financed with a tax on property values assessed against all beachfront property owners. Relatively low-rate real estate transfer taxes impose manageable burdens on buyers and sellers, and raise significant revenues for resource conservation programs in many states. In a region whose economy is dominated by seasonal tourism, sales taxes on lodging, meals, and entertainment equitably generate revenues to finance public facilities that must be sized to accommodate sudden but temporary surges in population (see case study on Occupancy

Tax: Dare County, North Carolina). Some wastewater treatment plants in coastal communities derive both construction capital and operating support from so-called "use and occupancy taxes."

But not all cleanup or prevention programs will have such readily identifiable beneficiaries or service populations. Moreover, states often limit local government authority to collect sales or property taxes. In practice, matching beneficiaries to tax bases may also pose problems. Despite all these determents, property and sales taxes are viable methods of raising revenue for projects to protect estuaries.

Commodity Taxes

Traditionally, certain commodities have been singled out for special taxation. Popular examples include taxes on gas, cigarettes, and liquor. These commodity taxes provide much narrower tax bases that can target beneficiaries of specific products or services. The federal gasoline tax, for example, finances highway improvements. Since 1981, a tax on diesel fuel consumed by tugboats has helped finance the maintenance dredging of the nation's system of inland waterways (see case study on Inland Waterways Trust Fund: Nationwide).

In other instances, the relationship between commodity tax bases and target populations is tenuous. In Washington State, for example, an eight cent per pack cigarette tax helps finance the state's water quality protection plan (see case study on Tobacco Taxes: Washington State). The New Hampshire liquor tax finances a broad range of activities across that state.

Tax Surcharges

A tax surcharge is an additional levy to an established tax rate. Frequently, surcharges are levied on a temporary basis. They help raise revenues for specific projects that may not have been anticipated and that are not expected to recur with any regular frequency. A tax surcharge on residential sewer bills, for instance, might finance the replacement of stormwater retention basins that were destroyed during a hurricane.

FEES

Fees for public services are intended to establish direct links between the demand for services and the cost to provide them. Fees are also used to help finance pollution control activities by charging polluters the costs their discharges impose upon society. Well-structured fees, therefore, are the most equitable means of (1) matching program costs and program

beneficiaries or (2) assessing the costs of cleanup on the parties responsible for the original pollution.

The qualifier "well-structured" is important. Where fees provide the primary source of project cost recovery, failure either to accurately approximate demand or to charge fully for services can jeopardize the financial viability of a project. Consider, for example, a local drainage project financed by acreage-based fees levied on landowners who stand to benefit from such a project. If fees are set too low, the project may go forward, but will eventually become insolvent. If fees are set too high, the project may not be approved by the landowners, even though project benefits exceed the real, but lower, project costs.

Unlike tax bases that may or may not be directly related to the services they finance, fees can be assessed on much more narrow bases. Typically, they are calculated as a function of use (user fees) or on the basis of proportional cost imposed on the system (impact fees).

When properly calculated and assessed, fees can encourage efficient public investment decisions by identifying the local share of project costs to beneficiaries before they decide to invest. Faced with the prospect of paying fees, users (or beneficiaries) will demand only those projects that they judge to be worth the cost. For example, residents faced with additional sewer system fees to finance urban stormwater control facilities would be likely to approve them only if they judged the projected water quality benefits to be worth the costs.

Appropriately structured fees also encourage efficient pollution control strategies by explicitly identifying the cause and effect of pollutants. Clearly, industry would be less likely to discharge toxic wastes to an estuary if fees for sediment detoxification were assessed on each gallon of waste discharged.

User Fees

Charging beneficiaries directly through user fees is the most common way of recovering the costs of fee-based projects. User fees are especially useful at the local level, because most services are provided by local governments to easily identifiable user groups. Examples include charges for water, sewer, and solid waste disposal. In many coastal areas, septic systems are a source of near coastal water pollution. One way to control this source is inspecting tanks periodically, pumping out septage, and replacing poorly operating drain fields. A number of communities have financed such programs entirely

with periodic fees collected from homeowners with septic systems. Properly structured fees ensure a long-term source of recurring capital that can finance day-to-day operations, strengthen a locality's ability to issue low-cost bonds, and contribute to retained capital for later investment in repairs and rehabilitation.

Impact Fees

Impact fees are similar to user fees in that they are intended to recover the cost of services from individuals or groups responsible for generating those costs. Typically, impact fees transfer the costs of infrastructure services required by private development directly to developers who, in turn, redistribute some of these costs through home sales or commercial leases. In California, for example, several wastewater treatment plants have been financed with fees paid by developers on the basis of demands for treatment that their communities are expected to generate.

Unlike user fees, which recover costs over the life of a project, impact fees are typically collected in one lump sum at the beginning of a project. These fees are particularly attractive to local governments because they relieve up-front financing pressures on local budgets. Instead of paying for new development out of general revenues prior to the growth of a sufficient revenue base, impact fees secure equivalent financing from the private sector (and ultimately from new residents of a community). Impact fees have the additional advantage of avoiding the political fallout often associated with tax increases.

Not surprisingly, impact fees have been criticized by developers both as an unjust imposition of local police powers and because of their implications for equity--fees effectively make new developers pay the same costs that were provided to original residents as highly subsidized community investments. Consequently, care must be exercised in imposing impact fees to ensure that all legal commitments are met and that fees do not exceed the cost of needed improvements. On the whole, impact fees work best where there is strong pressure from private development.

INTERGOVERNMENTAL TRANSFERS

Transfers are fees or taxes collected by one level of government and passed on to another. One interpretation of intergovernmental transfers is that they redistribute revenue or income geographically. Typically, these funds are provided as grants for specific types of projects, not as general support

to be used as the receiving government sees fit.[3] Hence, even though intergovernmental transfers constitute a considerable proportion of state and local revenues (20 percent and 35 percent, respectively), their utility for support of broad governmental activities is limited.

The beneficiaries of transfers are primarily local governments. The Federal Office of Management and Budget publishes a Catalog of Domestic Federal Assistance each year, listing the federal grant programs active in each program area. Many such programs are suited to finance estuarine and marine restoration programs. In addition, most states have grant and loan programs that would be applicable to marine or estuarine pollution control, water quality monitoring, hazardous waste site cleanup, nonpoint source control, habitat restoration, and other activities.

DEBT AS A SOURCE OF CAPITAL

Debt financing is a sound way to raise up-front capital and to distribute the burden of repayment for a long-lived facility across all individuals who benefit from it. Generally, these projects require larger outlays than a locality may have available at any given time. Much as individuals borrow to finance their homes through bank-issued mortgages, governments borrow funds from investors by issuing debt in the form of bonds. It is important to note that a bond is not an independent source of revenue. Because borrowed funds must be repaid, the ultimate source of repayment, and thus the bond revenue, is either taxes or user fees.

Bonds are best suited to finance capital facilities, such as wastewater treatment plants or municipal waste resource recovery plants. Bonds are also appropriate to finance nonstructural investments if they generate sufficient revenues to repay the debt or if the issuing entity is willing to back the borrower with its general credit. Bonds are not suited to fund ongoing, routine expenses such as water quality monitoring.

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[3] One recent exception to this was the General Revenue Sharing program that, until it lost its authority in 1986, provided block grants to localities to be used at local discretion.

Tax-exempt bonds may be categorized by term (or maturity) and by source of funds for repayment of principal and interest. The division by term includes short-term bonds, which mature and are payable in one year or less from the date of issue, and long-term bonds, which bear a maturity greater than one year. There are two types of long-term bonds: general obligation (G.O.) and revenue bonds. G.O. bonds are backed by the full faith and credit of the issuing entity. This means that the issuing local or state government pledges to use all of its taxing and other revenue raising powers to repay bond holders. A revenue bond, in contrast, is backed strictly by the future stream of revenues expected to be generated by the project that the bond finances.

Short-Term Debt. Short-term debt is often used to provide interim funds for projects waiting to receive long-term financing such as taxes or grants. The guarantee of repayment typically is provided by a dedication of the expected taxes or grants.

There are two general categories of short-term financing: notes and tax-exempt commercial paper (TECP). Notes include obligations issued in anticipation of grants (grant anticipation notes, or GANs), bonds (BANs), or taxes (TANs). TECP is a form of unsecured debt backed by a letter or line of credit. Its popularity has grown rapidly since its inception in 1980. Compared to notes, TECP offers lower interest rates, enhanced flexibility, and greater liquidity. However, these benefits can be offset by higher issuance costs because TECP requires a line or letter of credit as a guarantee.

Long-Term Bonds. Long-term bonds traditionally match the term of financing with the longevity of the project. A wastewater treatment plant, for example, might be expected to perform adequately for 30 years without major rehabilitation. In recognition of this long life, the community would issue a 30-year bond. Long-term bonds fall into two categories: term bonds, the entire principal of which matures and is payable on the final maturity date; and serial bonds, the principal of which is repaid in periodic installments over the life of the issue. Long-term bonds can be issued as general obligation or revenue bonds.

General obligation bonds. All other things equal, the general obligation of a government entity is considered a stronger guarantee of repayment than a dedicated stream of revenues. Because this guarantee represents the most direct obligation

of the issuer, the accumulated level of outstanding G.O. debt is an important measure in developing credit ratings (discussed subsequently) and can become a constraining factor in the addition of new G.O. debt. Beyond a certain level, existing taxing authority may be insufficient to guarantee new bonds, a condition that reflects poorly on the financial stability of a government. About 40 states require voter approval of all local general obligation debt; thus even if new debt is feasible for a debt-burdened government, voters may disapprove it because of high interest rates or the possibility of additional taxes. These constraints have lowered the appeal of G.O. debt, giving rise to the growth of revenue-backed issues.

Revenue bonds. Because revenue bonds have far fewer constraints, they have replaced G.O. bonds as the primary form of municipal tax-exempt financing. In theory, because this form of debt has its own guarantee (the project revenues), its issuance should not decrease a locality's credit rating. In practice, however, revenue debt represents an indirect obligation of the issuing government. In addition, because the lender has only the project revenues to depend on for repayment, the value of the guarantee is not as great as that of a similar G.O. bond. Therefore, relative to comparable G.O. bonds, interest rates for revenue bonds are generally higher.

Negotiated Versus Competitive Bonds

Whatever the type of bond, underwriters or investment bankers secure the rights to market it in one of two ways. In a competitive bidding process, generally the lowest cost underwriter is granted the rights to market the issuer's bond. Competitive bonds may be preferable for smaller, more conventional issues or those to be offered in a stable market. Alternatively, with more complicated issues, one underwriter negotiates directly with the issuer to establish the terms and cost of marketing the bond. All things equal, competition will generally lower the cost of issuing debt.

Credit Ratings and Interest Rates

Community planners considering using bonds to finance estuarine protection projects must evaluate credit ratings and interest rates. Interest rates on municipal bonds are composed of three components: (1) the cost of the use of money--a factor determined outside the tax-exempt bond market; (2) a premium reflecting current supply of and demand for similar bonds; and (3) compensation for investor risk (of inflation and

issuer default). The basic cost of the use of money is a function of complex interactions of federal fiscal and monetary policies. The final component, which is investment ratings of risk, provides investors basic information on the relative credit-worthiness of government entities. Together with supply and demand, investment ratings help determine the appropriate rate of interest payable within the range established by fiscal and monetary policies.

Moody's Investors Service and Standard & Poor's are the two principal organizations that regularly issue municipal bond ratings for a fee. The most important rating factors for G.O. bonds include the following: trends in growth, employment, and income of the underlying population; organization and management of the issuer; the issuer's recent financial history; and the issuer's past performance in handling debt. For revenue bonds, the above factors are considered, but the financial prospectus of the planned project, particularly the projected revenues, are afforded greater consideration. Some communities, especially the small ones, may choose not to have their bonds rated. This saves the cost of the fee even though a rating can enhance marketability and reduce interest costs.[4]

Impacts of the Tax Reform Act of 1986

Managers investigating the benefits of using bonds to raise revenue for cleanup activities should understand the implications of the 1986 tax reform on the utility of bonds. Tax reform in 1986 imposed stringent limits on the use of proceeds from tax-exempt bonds, restricted the total volume of tax- exempt debt available to each state through annual "caps," required more detailed reporting and planning, and imposed greater administrative and compliance burdens on issuers of municipal bonds. Under the new provisions, only "governmental" bonds are exempt from taxes. Governmental bonds are those for which less than 10 percent of the proceeds are used (directly or indirectly) for a trade or business, and less than 10 percent of the payment of principal or interest is made by a nongovernmental entity.

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[4] In a recent survey of bonds issued to finance water supply improvements, for example, only 14 percent of the bonds issued by towns with populations of 5,000 or less were rated. In contrast, over 90 percent of the bonds issued by cities with populations greater than 100,000 carried a rating. See Kenneth I. Rubin and Michael Deitch, Financing Municipal Water Supply Systems, U.S. Congressional Budget Office (May 1987).

So called "private-activity bonds" (private pollution control, industrial development, student loan, mortgage revenue, and non-profit organization bonds) are generally taxable except in certain circumstances.

There are three classes of private-activity bonds: taxable; tax-exempt, but subject to annual statewide volume limitations; and tax-exempt, but not subject to volume limits. The volume of new tax-exempt private-activity bonds issued by all municipalities within a state is subject to a volume cap of the greater of $75 per person or $250 million per state in 1987. By 1988 and thereafter, the cap drops to $50 per person or $150 million. Once the total volume of allowable private-activity bonds has exceeded the state's cap, all new private-activity bonds will be taxable.

Overall, tax reform has reduced the supply of tax-exempt securities, but the impact on demand is unclear. Institutional demand for tax-exempt bonds has already declined as a result of tax reform. Balanced against this, however, is the increased demand from individuals because other tax-sheltered investments were also limited by tax reform in 1986. Despite these limitations on the use of revenues from bonds, bonds are effective mechanisms of raising capital up front.

PRIVATE CAPITAL

Another method of financing projects to protect estuaries is tapping the resources of private capital. Although local government partnerships with private firms have received increasing attention recently, financing public facilities with private capital is not new. Public/private partnerships have financed solid waste disposal and mass transit facilities for many years. More recently, private participants have helped finance facilities, such as roads, wastewater treatment plants, and jails, once thought to be in the sole purview of the public sector. On the whole, the ability to attract private capital is limited primarily by local development pressure, the economics of the facility to be financed, and the limitations of the 1986 Tax Reform Act.

All forms of public/private partnerships offer viable ways to finance estuarine and marine protection initiatives, but the partnerships must meet certain conditions. Involuntary private payments should be solicited in an equitable fashion to avoid unnecessary litigation. For voluntary private investments, the private partner must be assured a reasonable return on investment. Returns can include actual cash payments (e.g., sewer fees to operate a wastewater treatment

plant), enhanced private operations (e.g., higher fisheries yields due to cleaner water), or intangible factors (e.g., enhanced community acceptance or a stronger labor force).

Private Ownership or Operation

Many of these "privatization" transactions, particularly those in which a private partner owned a public facility, were attractive largely because of the private tax benefits of ownership initiated by 1981 tax reform legislation. Many more privatized facilities would have been built had 1986 tax reform not eliminated these same benefits. However, because of these recent tax changes, the private interest in financing and owning public facilities has diminished considerably, if not disappeared entirely.

On the other hand, private operation of public facilities is growing. There are two reasons for this. First, some private operators can deliver quality services at less cost than their public counterparts.[5] Second, private operators often supply well-trained personnel, who would otherwise be unaffordable for many small, local governments. As a result, private operators are frequently hired to solve persistent water quality violations.

In such arrangements, the public partner finances and builds the facility while the private partner operates and maintains it for a fee. In 1986, about 100 municipal wastewater treatment plants were operated privately. Private operation is applicable in estuarine and marine programs wherever a pollution control facility is not meeting its minimum discharge limits.

Other Forms of Public/ Private Partnerships

Privatization need not encompass only the traditional forms discussed above. In fact, some of the most innovative ways estuarine managers can attract private capital involve taking advantage of rapidly escalating real estate values to form new types of public/private partnerships. This section discusses two such arrangements: impact fees, which enlist private financing involuntarily, and capacity credit systems, which attract private capital voluntarily.

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[5] Proponents claim that private operation can save 5 percent to 15 percent over the cost of public operation.

Impact Fees. Impact fees are charges to developers for public construction of facilities to serve their development site. They assess the cost of added infrastructure only upon the new development that requires expanded services. Fees are usually set by a fixed schedule or by a formula based on proportional demands (the number of dwelling units in a residential development, for example). Rarely are fees negotiable or contested by developers. Impact fees offer a high degree of flexibility because revenues can be reserved in a developer's own municipal account for capital expansion at a future date.

Impact fees have financed capital facilities most successfully in rapidly growing areas. Hence, they are well suited to finance pollution control facilities in many coastal regions because of the intense development pressure in beachfront communities. Similar systems also could be devised to finance operating programs such as water quality monitoring.

Municipal sewer departments are the largest current users of impact fees. One recent national survey found that 190 cities with populations above 15,000 used impact fees to finance wastewater treatment plants.[6] In Orange County, Florida, for example, a new sewage treatment impact fee was assessed against developers when the EPA enjoined the county from dumping sewage into a local estuary and local growth had depleted existing sewage treatment capacity.

Numerous issues have arisen as impact fees have grown in popularity. Equity is perhaps the most significant one. Major developments tend to become targets for exactions, while smaller projects often escape assessment, even though a large number of smaller projects can place greater demands on infrastructure than a single major project. Home buyers usually end up paying for services because most impact fees are simply passed along in housing prices.

Impact fees also have long-term implications for future development patterns. As congestion increases in a heavily developed region and developers are forced to pay for needed infrastructure services, development opportunities may be created in surrounding communities that have the capacity to absorb new development and do not assess impact fees. Although these regional shifts can help balance growth, they can also lead to suburban sprawl and development of rural lands.

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[6] James E. Frank, et al., Community Experience with Sewer Impact Fees: A National Study, Policy Sciences Program, Florida State University (1985).

Capacity Credits. Selling capacity credits to private developers is a relatively new way to finance pollution control projects. Like impact fees, only new users demanding services pay for new services. But, unlike impact fees, users pay voluntarily. Only a few programs currently exist, but capacity credits appear to offer many advantages over other public/private partnerships. Capacity credits are best suited to finance capital facilities such as wastewater treatment plants, solid waste management facilities, or stormwater control facilities.

Typically, a municipality faced with demand for new or expanded wastewater treatment capacity conditions the provision of this service on the prior collection of sufficient capacity credits from the private development community. Individual developers buy (or reserve for future use) a certain amount of capacity in a prospective wastewater treatment plant. When enough advance capacity is sold, the project moves forward (see case study on Wastewater System Access Rights: Houston, Texas). The exact amount needed before a project may proceed depends on the goals of the municipality. Some may require full prepurchase and others may supplement capacity credits with local financing, which may or may not be sold later. Often, earlier purchasers buy capacity at lower unit costs than latecomers.

In Upper Merion Township, Pennsylvania, for example, the city faced demands for new treatment capacity imposed by population growth. The city fashioned a capacity credit program (called The Sewer Access Rights Program) that would allow for incremental expansion of existing facilities based on growth in the sale of credits to private developers. The town charges a one-time fee of $3,200 per "Equivalent Dwelling Unit" (200 gallons per day). Fees will increase annually to account for increases in construction costs. Nonparticipants have no guarantee of sewage treatment capacity for their development. The initial offering was for 1.8 million gallons a day (mgd) (which is equivalent to 9000 dwelling units), with additional expansion upon demand to 5.5 mgd. Because the program is so new, no results can be reported at this time. However, the city fully expects to sell out its initial offering.

Capacity credit systems impose the costs of expansion on the population causing the new demand, while minimizing cost increases for existing populations. They also serve as tools for practical regional planning. The purchase of capacity credits signals increased demand for new capacity; otherwise, facilities' built-in extra capacity may lie idle for years and impose high costs on the current population. The purchase of capacity credits also signals where new capacity will be needed.

Despite the advantages, capacity credits have drawbacks as well. First, they appear most suited to finance capital facilities in growing regions. In stagnant or declining areas facing rehabilitation, capacity credits are less applicable. Second, the system of capacity credits could be made more efficient, but perhaps more administratively complex, if credits could be resold. Under the right conditions, capacity credits can help estuary programs build up capital to construct pollution control facilities and justify controls on local growth.

TAX INCREMENT FINANCING

Many of the strategies discussed earlier for securing revenue from the private sector work best in high growth areas. Tax increment financing (TIF), on the other hand, can redirect private investment capital to depressed areas, boosting economic activities and increasing employment. Typically, a local government issues a bond to finance a public works project in a depressed area. This development attracts private investment in businesses and services to support the expected growth. As land values increase, real estate tax revenues also increase. These new revenues are dedicated to repay the local bond issue.

In order to be eligible for TIF in most states, the local government must demonstrate that redevelopment in a specified area is necessary, prepare a redevelopment plan, and submit that plan at a public hearing. In addition, the plan must conform to the requirements specified in the Tax Reform Act of 1986 in order for the municipality to be eligible for tax-exempt financing. The City of Orlando, Florida, for example, created a Community Redevelopment Trust Fund in 1982 to carry out the redevelopment of run-down areas of the city. The city structured a series of revenue bonds to finance housing, transportation, and other investments. These bonds are not a general obligation of the agency or the City of Orlando; they are secured by an irrevocable lien on the increment in property tax revenues paid into the Trust Fund and interest earned by the Trust Fund. Because redevelopment increased real estate values, tax increment revenues contributed to the Trust Fund climbed from $940,000 in 1984 to $2.27 million in FY 1986 (for more detail, see case study on Tax Increment Financing District: Orlando, Florida).

Tax increment financing could be applied to estuarine or coastal initiatives if the restoration of communities bordering these resources would cause an increase in property values or if development were tied to specific cleanup programs. In either case, land values would be expected to increase, the

rate of increase determining the total financing possible. Urban stormwater control, for example, would both help improve local water quality and boost local real estate values. Such a facility could be financed with a TIF district revenue bond. A disadvantage of tax increment financing is that, given its dependence on development not yet in place, revenues are viewed by the capital markets as somewhat uncertain. This uncertainty can increase the cost of revenue bond financing.

Chapter III

Financial Management Mechanisms

Financial management mechanisms link sources of funds to uses. Like pumps and valves in a system of water pipes, financial management methods direct the flow of taxes, fees, and other funds to programs, hastening some and slowing others. Managers of estuarine or marine programs that rely on state or local legislatures for support should understand the broad financial management mechanisms used at the legislative level.

There are three techniques for coordinating the distribution of money: appropriations, capital budgeting, and independent mechanisms. The political process, which periodically appropriates general revenue to government programs, is perhaps the most common financial management tool at the legislative level. Capital budgeting is another broad financial management technique that allocates funds to construction projects on the basis of selected criteria.

Managers of estuarine and marine programs that are financed independently of other, broader, governmental programs should examine other types of financial management mechanisms designed to channel specific sources of revenue to particular cleanup initiatives. These independent mechanisms could include dedicated funds, enterprise or revolving funds, bond banks, and pooled financing. These independent financial methods are intended to efficiently manage project- or program-specific resources. Often, special public or public/private institutions must be created to monitor and control financial management activities (see Chapter IV).

APPROPRIATIONS

Legislatures use the appropriations process to make the fundamental decisions that allocate public resources to programs or projects. The federal government, for example, appropriates funds annually for each administrative agency according to previously authorized budget ceilings. In some

programs, particularly the direct investment programs in water resources development projects, the U.S. Congress appropriates funds on a project-by-project basis. States appropriate their operating budgets in similar ways. Local governments may or may not be as structured within periodic appropriations processes. Where they are not, funds are generally allocated to programs directly through the budget process.

The most obvious drawback of relying on annual appropriations to finance multiyear projects, such as many estuarine or marine cleanup initiatives, is the year-to-year funding uncertainties as new priorities arise. In 1986, for example, there were $60 billion of approved, but unfinished, federal projects to manage water resources waiting for appropriations. At the state level, where popular issues are more readily addressed legislatively, it is not difficult to imagine that several years into a cleanup program, a new state legislature and administration might prefer to fund its own favorite projects rather than pursue the policies of past law makers.

CAPITAL BUDGETING

Capital budgets are financial plans that account for the construction and upkeep of the physical facilities owned by public entities. Although the federal government does not use one, most state and local governments have some semblance of a capital budget.[7] Almost all capital budgets have four basic components:

- Selecting the scope of services for which the state or local government is responsible;
- Identifying assets through a physical inventory, an assessment of condition, and an evaluation of performance;
- Integrating the data with estimates of costs to operate and maintain existing facilities and build new ones; and

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[7] Over 80 percent of state governments (42 of the 50), 90 percent of large cities (populations greater than 250,000), and more than half of all other cities and counties use some form of capital budget to allocate funds to projects. See American Public Works Association, Public Works Management: Trends and Developments, 1981.

- Drafting a summary plan for distribution to (and concurrence by) all government public works agencies and interested nongovernment groups.

The object in capital budgeting is to assemble all available sources of funds and allocate them to the highest priority investments in capital expansion and major rehabilitation. This allocation process requires a recognition of the level and certainty of funds coming into the budget (from dedicated taxes, fees, grants, and appropriations); a way to set priorities for candidate projects (by using information on inventory, demand, and physical condition); and a way to evaluate the effectiveness of funded projects (by using information on performance and efficiency). Each year, projects can be recommended to the appropriate decision-making body for funding on the basis of a systematic, substantiated plan.

A capital budget is an appropriate financial management mechanism to help set investment priorities for a large number of capital facilities in an estuarine or marine region. For example, in Puget Sound, Washington, nearly one-third of the 106 municipal treatment plants will require replacement or upgrading to comply with discharge standards and improve the water quality of the Sound. These investments are scheduled to be made through the early 1990s. In order to create its priority list of projects for funding over this period, the state has, in effect, created a capital budget to plan for inflow and allocation of funds to individual projects.

INDEPENDENT MECHANISMS

Enterprise Funds

Enterprise funds help manage the finances of government activities that are largely self-supported through user fees. Income from fees and outlays for capital as well as operation and maintenance are accounted for separately from the general fund of a state or local government. Some enterprise funds operate without assistance from the parent municipal government or intergovernmental grants, whereas others receive periodic infusions of capital from general revenues or grants-in-aid. Common city enterprise funds include water and sewer services, electric and gas utilities, airports, parking lots, and local transit (see case study on Water and Sewer Trust Funds: Corpus Christi, Texas).

The biggest advantage of operating a program through an enterprise fund is that revenues can be predicted with reasonable certainty. Separate enterprise funds make it more difficult for legislatures to interrupt the flow of funds from dedicated revenues to their uses. Moreover, if costs can be projected accurately, then the difference between revenues and costs suggests the need to adjust user fees in advance of the eventual outlay. A projected shortfall, for example, warns policy makers that rates should be increased accordingly.

Revolving Loan Funds

Revolving loan funds (RLFs), which are generally operated by states, provide long-term, low-interest loans to localities for major capital investments. In addition, they may provide other forms of financial assistance such as credit enhancement or, to a limited extent, grants. The popularity of RLFs at the state level has increased rapidly over the last few years and in 1987, the 16 operational state RLFs provided loans for virtually every type of public works facility. In addition, the Clean Water Act amendments in 1987 provided $8.4 billion in federal seed capital for state wastewater treatment RLFs, an action likely to result in the creation of such funds in all 50 states.[8]

In a state revolving fund, a state institution receives an initial infusion of capital, typically appropriations from general revenue, federal grants, or the proceeds from a bond issue. The fund managers act as loan officers for all future operations. Local user fees (such as sewer charges in the case of wastewater treatment plants) are set to cover operation and maintenance costs and repay the loan. Interest rates vary by state from no interest to a near-market rate. Over time, as repayments accumulate, the RLF makes additional loans using those repayments; hence, the fund "revolves."

Managers must recognize the various ways individual RLFs are capitalized and operated. The following list summarizes the characteristics of the 16 operating state RLFs as of 1987:

- Financial and technical operations are typically conducted in separate state offices. Older funds tend to have better working relationships between the technical and financial operations.

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[8] In order to participate, states must provide a 20 percent match, making the total anticipated capitalization $10.1 billion.

- Although capitalization varies from state to state, half the states started out with an appropriation from general revenues and half the states granted borrowing authority to their RLFs.

- Only one state (Washington) operates its fund on a pay-as-you-go basis. Dedicated water, sewer, and solid waste revenues plus revenue from a real estate transfer tax are that fund's only sources of capital.

- Some RLFs are designed to be self-sustaining, whereas other funds must receive periodic infusions of capital to maintain a healthy balance.

- Most fund lending is not targeted to fiscal capacity or any other criteria. Instead, it is done on a first-come, first-served basis.

- Most RLFs have the flexibility to adjust loan terms to suit localities' ability to repay.

- Many funds finance wastewater treatment facilities plus other projects, including water supply, solid waste management, water resources development projects, highways, streets, and bridges.

- Loan defaults are surprisingly rare. Most RLFs rely on preventive screening procedures to minimize defaults.

The benefits of RLFs include targeted investments to specific project types (which are identified in enabling legislation) and the security of a long-term source of capital with few effects from political volatility. In addition, because the primary form of assistance is loans, RLFs encourage the use of more efficient management techniques.

The principal drawback of RLFs is their start-up cost. Because this type of fund must have capital to begin lending, the state must first authorize or otherwise secure some form of seed capital. Possible sources include bond proceeds, a diversion of existing grants or loans, dedicated taxes, and intergovernmental grants. In addition, RLFs do not guarantee equitable distribution of funds. Localities still have to finance their share of construction costs if loans are made for less than the total cost of the facility. This situation could result in the wealthiest communities deriving most of the benefits of RLF financing.

Bond Banks

Bond banks are another type of independent financing technique that town planners can use to raise revenue for projects to preserve coastal resources. State bond banks purchase local bonds that would otherwise bear very high interest costs and reissue the pooled, local debt as a single state bond at a lower interest rate. Bond banks improve borrowers' access to the financial markets by lowering local costs of capital and assuming some of the risk of local default. Bond banks have either a debt service reserve or a moral obligation from the state to cover local defaults. These guarantees effectively diminish the risk to bondholders and lower interest rates. In general, bond banks are most useful in states with a strong bond rating and a relatively high number of small, rural communities that seek debt capital infrequently.[9]

Bond bank financial management would be ideal to finance an estuarine restoration program that comprises many small pollution control facilities within a single state. Of course, not all states have bond banks and it would be unlikely for a state to initiate one just to meet the needs of an estuary cleanup program.[10]

Revenue Dedication and Trust Funds

Revenue dedication and trust funds are the final types of independent or creative financing that are often appropriate to the needs of estuary programs. All levels of government earmark revenues. Earmarking dedicates revenue from a specific tax (or other stream of revenues) to the financing of a particular government function. The most widely earmarked taxes are on gasoline, vehicle registrations, general sales,

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[9] See "Bond Banks: Pooled Offering Help the Small and Sometimes the Weak," Credit Markets, April 16, 1984.

[10] Since 1969, when Vermont opened the first bond bank, at least seven other states have followed suit: Alaska, Arkansas, Indiana, Maine, New Hampshire, Nevada, and North Dakota; Puerto Rico also initiated a bond bank. The Maine bank now has over $200 million in outstanding debt issued on behalf of almost 400 localities. It goes to market twice a year, generally with issues averaging $15 million.

tobacco, and alcohol.[11] Typically, a trust fund is set up within the government budget in order to handle the dedicated income and outlays (see case study on Land Bank and Dedicated Revenues: Nantucket Island, Massachusetts). In 1984, 21 percent of state tax revenue was tied to specific purposes. This amount is not significantly different from the 23 percent of state tax revenues earmarked in 1979, but a large decline from the 50 percent plus that was earmarked in the mid-1950s.

There are two ways that states earmark revenues for handling in trust funds: constitutionally or legislatively. Most constitutionally earmarked funds require no legislative appropriation to release trust fund deposits. Deposits accrue to the trust fund automatically and are generally available for only the purpose named in the constitution. In other states, the legislatures dedicate receipts and designate trust funds to manage them. Current appropriations may or may not be required to release these statutorily earmarked funds. The advantage of statutory earmarking is that legislatures have more flexibility to collect funds and make annual appropriations. On the other hand, constitutional dedication, though more difficult to enact, secures funds with less threat of political interference. Some states permit transfers of surplus earmarked funds to unrelated purposes regardless of the technique under which they were dedicated.

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[11] For additional information, see Steven D. Gold, et al., Earmarking State Taxes, a draft report of the National Council on State Legislatures (1987).

Chapter IV

Institutional Arrangements

Because projects to clean up estuaries can involve numerous political jurisdictions within a state, or even several states, managers of our coastal resources must be aware of the types of governments and institutions that control and distribute revenue. The 82,000 individual governments in the United States provide the framework within which capital for investment is secured and managed. Consequently, the characteristics of these governments and their components are often the critical variables in the creation and implementation of a financing plan.

Many governments are readily recognized and include the standard government units such as federal agencies, state agencies, and governing boards of local governments (municipalities, counties, and townships). These conventional governments typically have many responsibilities and a broad authority to tax, borrow, or charge fees. The less traditional regional authorities and special districts generally are designed to administer fiscal programs within a multi-jurisdictional region or apply capital access tools either on behalf of a limited group of beneficiaries or for limited purposes, such as for agricultural best management practices.

CONVENTIONAL GOVERNMENTS

Although the responsibilities of conventional governments and their ability to raise revenues vary considerably, all have two qualities in common. They operate, directly or indirectly, a wide variety of services, and they have the ability to authorize an equally wide variety of mechanisms to recover the cost of those services. But despite this flexibility, conventional governments tend to rely most heavily on only a few sources to recover costs.

Federal Government

The federal government devotes three-quarters of its revenues to two program areas: (1) national defense and international relations, and (2) social security. Because of the broad-based societal benefits these programs generate, the mechanisms for cost recovery are equally broad in scope. Federal revenues are derived primarily from three taxes: individual income (41 percent), social security (31 percent), and corporate net income (8 percent).[12]

The federal government is the primary public investor in natural resource protection programs. Although only 6 percent of its annual budget ($52 billion) goes to natural resource protection programs including estuarine, marine, and near coastal management, this amount represents 86 percent of total government expenditures for that purpose. In addition, the federal government accepts financial responsibility for many projects whose benefits are regional in nature. The federal government chooses to invest in many of these projects because benefits exceed, or "spill over," state or local boundaries. The interstate highway system, the air traffic control system, and some water resource projects are just a few examples.

In addition to EPA's National Estuary Program, which funds programs to preserve the water and resources of estuaries threatened by overuse and development, a number of other federal programs can assist in the restoration and protection of estuarine and marine waters. For instance, the U.S. Soil Conservation Service and EPA help finance rural nonpoint source control projects. The Farmers Home Administration operates a program of loans and grants for water and sewer improvements to communities with fewer than 10,000 inhabitants. In addition, the Department of Housing and Urban Development provides community development block grants that can be used largely at the discretion of the grant recipient. The Economic Development Administration administers similar grants that have financed sewer and stormwater control investments. Coastal Zone Management Act funds also may be available for estuary protection plans.

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[12] Special fees or charges generate 13 percent of federal income, but are derived from a wide variety of sources including postage, natural resources, and housing.

State Government

Like the federal government, state governments also hold responsibility for projects with broad-based benefits. Generally, however, these benefits are confined within state boundaries. States derive revenues primarily from five sources: general sales taxes (24 percent), federal grants (21 percent), individual income taxes (16 percent), user fees and other charges (14 percent), and insurance trust revenues (16 percent). State governments spend these funds on a variety of purposes including education, social services, transportation, and public safety. In 1985, all states combined spent nearly $7 billion (2 percent of total state spending) for natural resource protection programs.

States also support local governments. In 1984, for example, states transferred some $116 billion in loans and grants to local governments. Of that amount, nearly 66 percent was for education, 12 percent was for welfare programs, 10 percent was general support for all local operating programs, 4 percent was for public health, and the rest was for transportation, natural resources, public safety, housing, and miscellaneous uses.

In addition to appropriations, there are many state programs that can be used to help finance estuarine and coastal resource protection programs. Property tax incentives or compensation for conservation easements help preserve open space in coastal regions of Connecticut, Delaware, Maine, New Hampshire, North Carolina, Rhode Island, Virginia, Oregon, New York, Maryland, Georgia, New Jersey, and South Carolina. Nongame income tax checkoffs in 32 states raised $9.4 million in 1985 for many conservation purposes including habitat restoration, wetlands inventories, and natural areas acquisition. Some states also dedicate revenues from stamp sales, severance taxes, and real estate transfer taxes to the acquisition of critical coastal land areas.

Local Government

Local governments play a particularly important role in providing water and sewer services as well as other environmental control programs (such as drainage, stormwater control, flood protection, and beach restoration). The source-to-use link is the clearest and best justified at the local level of government. This link is demonstrated by the local government's reliance on user charges for revenues. For their operating revenues, local governments depend on intergovernmental transfers (34 percent), property taxes (25

(percent), a wide variety of user-charges (20 percent), and general sales taxes (5 percent). Local governments' primary responsibilities are education, health, welfare, and highways, but significant local expenditures also provide for police and fire protection, jails, and environmental projects. Thus, although localities tend to collect funds from more sources than other levels of government, these funds are often secured for specific, targeted purposes.

In 1984, for instance, localities spent about $12 billion to build and operate wastewater treatment plants and another $14 billion for drinking water supply facilities. Although $2.4 billion of the wastewater treatment expenditure was federal grants passed through to localities, most of the water supply expenditure originated from local revenues. In contrast, local governments spent less than $2 billion in 1984 for natural resource protection programs.

SPECIAL-PURPOSE GOVERNMENTS

Special-purpose governments appear to be well matched to the institutional needs of most estuary and near coastal clean-up programs. Often, the natural resources to be protected are not covered by existing institutional boundaries. Interstate or inter-jurisdictional coordination is frequently necessary. In addition, many of the revenue-raising mechanisms that link users to payments are readily administered by special-purpose units created to manage such flows. For these reasons, managers looking for ways to raise revenue for implementing estuary protection programs should consider creating a special-purpose government.

There are 43,000 special-purpose governments in the United States today. Most of them are districts, compacts, commissions, or other authorities organized to manage the provision of a single service. Aside from school districts, the most common of these governments include irrigation districts, stormwater management districts, interstate water management commissions, regional port authorities, turnpike commissions, and water and sewer management districts. Typically, these entities have limited powers to raise and manage money to finance the operation, construction, and upkeep of the physical plants over which they preside. Many areawide districts have the authority to levy ad valorem taxes; other special-purpose governments have the authority to issue their own bonds. Some governments have both powers.

Since the early 1970s, special-purpose governments (exclusive of school districts) have proliferated. In 1972, for example, 24,000 special-purpose units existed; by 1980, the total exceeded 28,000. The fiscal limitations imposed by state and local debt limits have been one of the chief reasons for this rapid growth. Nearing their debt limits or fearing that another issue might jeopardize their credit ratings, states and cities have resorted to creating separate institutions that are not subject to debt ceilings and that do not impair traditional governments' credit. These special-purpose units often issue revenue bonds rather than general obligation bonds because these units lack the financial guarantees of their associated municipal or state governments. Moreover, they often administer revenue- or utility-based programs.

Whatever the type of government, estuary managers must learn to work effectively with the financial institutions and tools available to fund pollution control projects. The case studies in the next section complement the concepts presented in the primer. These examples demonstrate how local and state resource managers have used the tools of public finance to support their programs. Some case studies document innovative combinations of revenues, management, and institutions, whereas others document straightforward programs. All cases should stimulate creative financial thinking to help protect our national coastal resources.

Part II. The Case Studies

Chapter I

Case Studies

INTRODUCTION AND OVERVIEW

These case studies complement the primer's discussion of financing tools, financial management mechanisms, and management institutions appropriate to support estuary cleanup projects. The case studies demonstrate the use of the various financing tools: hotel, tobacco, and boat fuel taxes; sport fishing, real estate transfer, users, and developers' fees; and water and sewer funds. Table 3 summarizes the 10 case studies in which resource managers raised money for specific programs, each involving different needs.

Each case study includes a section that evaluates the applicability of the particular financing technique to estuarine and marine resource restoration and protection programs. With few alterations, most case-study techniques are appropriate to finance many of these programs. It is important to match capital financing programs that raise lump sums in advance to capital projects with similar needs. Financing programs that raise recurring revenues are well suited to fund operating or maintenance programs with yearly budgets. All financing techniques also have limitations, which are appropriately noted.

Managers should note that none of the cases rely on intergovernmental grants. Instead, most either convert a future stream of benefits into current capital or reserve a portion of current revenues to finance programs on a pay-as-you-go basis. In Bellevue, Washington, for example, landowners pay acreage-based fees, which in turn, support bonds to finance stormwater control facilities. In Houston, developers buy rights to future wastewater treatment capacity, enabling their projects to proceed while sufficient current capital is raised to build treatment plants without financial strain on the city government. The seasonal demands placed on coastal resources by tourism in Dare County, North Carolina, are used to raise capital for local protection programs through a tax on hotels, motels, and rental units.

TABLE 3. SUMMARY OF CASE STUDIES

LOCATION	FINANCING TOOL	RECENT YEAR REVENUES	USE OF FUNDS	FINANCIAL MANAGEMENT MECHANISM	FINANCIAL MANAGEMENT INSTITUTION	PROGRAM APPLICABILITY	POTENTIAL OBSTACLES
Nantucket, MA	2% Real Estate Transfer Tax	$5.6 Million	Purchase Shoreline Property for Conservation & Access	Dedicated Fund (Land Bank)	Local Government	Capital & Operating	Issue of Double Taxation New Institutions Needed Interest Group Pressure (Realtors)
Dare County, NC	3% Occupancy Tax Hotels, Motels, Rental Units	$1 Million	Capital Projects	Dedicated Account In the General Fund	County Government	Capital & Operating	May Need State Approval Difficult to Enforce Interest Group Pressure (Realtors)
State of Washington	Tobacco Taxes	$40 Million	Water Quality Initiatives Grants & Loans	Revolving Loan Fund	State Government	Capital	Political Acceptance Process Development of Loan and Grant Criteria Interest Group Pressure (Tobacco Lobby)
Nationwide	Fuel Tax–Barges Using Inland Waterways	$58.5 Million	Operation, Maintenance & Rehabilitation of Inland Navigation	Inland Waterways Trust Fund	Federal Government	Capital & Operating	Could Shift Commodities to Other Transportation Modes Interest Group Pressure (Shippers)
State of Georgia	Oyster Harvest Lease Bids	$5,500	Oyster Bed Management	Private Sector	State Government	Operating	Potential Regional Economic Disparities Institutional Constraints Disparities
Orlando, FL	Tax Increment Financing	$2.27 Million	Redevelopment of Downtown Areas, i.e., Water and Sewage	Dedicated Trust Fund	City Government	Capital	Revenues Unpredictable Dependent on Economic Growth Tax Reform Restrictions
Chesapeake Bay, MD	Sport Fishing License Fees	$1.1 Million	Native Fish Management Program	Dedicated Fund	State Government	Operating	Elasticity Issues–Fishermen May Fish Elsewhere
Bellevue, WA	Acreage Based Fees	$3.4 Million Controls	Surface Runoff & Stormwater Drainage	Dedicated Fund	City Government	Capital & Operating	Public Support New Institution Needed Initial Rate Setting
Corpus Christi, TX	Impact Fees	$659,651	Water Supply and Wastewater Treatment Facilities	Dedicated Trust Funds	City Government	Capital	Most Appropriate in High Growth Areas Raises Equity Taxes
Houston, TX	Capital Recovery Charges	$11 Million	Wastewater Treatment Facilities	Dedicated Funds	City Government	Capital	Most Appropriate in High Growth Areas Developing Fee Structure

The case studies provide a number of examples that will allow managers to choose the financing tools most appropriate to their specific need. A 2 percent real estate transfer tax, for instance, raises $5.6 million a year to conserve and protect the coastline of Nantucket Island. A sport licensing program that raises $1.1 million a year supports native fish management programs in Maryland. In Corpus Christi, Texas, developers pay over half a million dollars a year in fees that are managed in four dedicated trust funds to build water and wastewater treatment plants.

In five of the case studies, revenues are managed by local governments, two by state governments, and two by special-district governments. The federal government administers the Inland Waterways Trust Fund, which assesses a small fuel tax on tug boat operators. The tax is dedicated to a special fund within the U.S. budget to assure that needed repairs and capital improvements are made nationwide. Similar programs, administered by local agencies, would be applicable to fund shore or harbor maintenance in any coastal region.

Chapter II

Land Bank and Dedicated Revenues: Nantucket Island, Massachusetts

In response to extreme development pressure, residents of Nantucket Island, Massachusetts, created a Land Bank in 1983 to acquire up to 15 percent of the island's shores and moors by 1990. The Bank also actively manages these resources to ensure public access to recreational areas. The Bank is funded predominantly by a transfer fee of 2 percent of the price of all property sold in Nantucket County. In 1986, these transfer fees generated $98,000 a week, or $5.1 million for the year, in revenue for the Land Bank Fund. Financing the acquisition of critical lands, or any other protection program, with revenue derived from real estate transfer taxes is ideally suited to coastal counties.

BACKGROUND

Nantucket is a 50-square-mile island located 22 miles off the southeastern shore of Massachusetts. The island supports a year-round population of 6000 residents. In summer, however, the island is flooded with off-islanders returning to summer homes or vacationers enjoying a visit. Roughly half a million visitors yearly come to Nantucket to enjoy its 70 miles of beaches and unique open moorlands. Not surprisingly, tourism and construction are the two principal industries on the island.

Roughly one-third of the island has been preserved by private land trusts such as the Nantucket Conservation Foundation, Trustees of Reservations, Massachusetts Audubon, and the Nantucket Ornithological Association. Nevertheless, the island has experienced intense development pressures, with about 300 homes built and 500 lots subdivided per year.

As more homes are built each year, islanders have become increasingly concerned about the diminishing open lands and beaches as well as reduced public access to these areas. Of the 70 miles of shorefront on Nantucket, only 1.5 miles are publicly owned. Traditionally, islanders have allowed public access to privately owned beaches.

But, as more and more shorefront property is bought by off-islanders and non-Massachusetts residents, long-time residents fear that this tradition will disappear. The Nantucket Land Bank was instituted to ensure public access to beaches and open spaces on the island in the face of this development pressure.

ADMINISTRATIVE SETTING

The Land Bank program is the first of its kind in the nation. The initial concept to create the Bank began with a growth management conference to educate the public on this innovative institution. The proceedings from the conference, "Goals and Objectives for Balanced Growth," contained the island's first written policy on growth management. A year-long consensus-building effort culminated in the 1983 endorsement of a Land Bank at a Nantucket town meeting by an overwhelming margin of 446 to 1. The Nantucket Island Land Bank was formally established by Chapter 669 of the Acts of 1983 of the Commonwealth of Massachusetts.

The Land Bank is governed by a five-member commission, elected by popular vote to five-year staggered terms of office. Members of the commission, who serve without compensation, must be legal residents of Nantucket County. Commissioners make decisions governing Bank affairs and the uses of Bank monies. They are empowered to do the following:

- Purchase and acquire simple fee interests in any land in Nantucket County;
- Accept gifts of any such lands or funds to further the purpose of the Bank;
- Take such interests in lands by eminent domain pursuant to Chapter 79 of the general laws (only after a vote in which four commissioners favor such action and only after authorization from a two-thirds vote of an annual town meeting and provided that reasonable effort is made to negotiate the acquisition of the land prior to the taking);
- Incur debt pledging the full faith and credit of the town of Nantucket; and
- Hire staff and professionals necessary to carry out Bank business.

Decisions of the commission require majority vote. Business can be conducted only with at least three members present. The commission meets twice a month and additional special meetings can be called on an as-needed basis.

PROGRAM CHARACTERISTICS

The Land Bank imposes a fee of 2 percent of the purchase price of any property sold in Nantucket County upon transference of ownership. Certain types of land transfers are exempt from the transfer fee. Transfers to the U.S. government and to charities, foreclosures, and up to $100,000 of property for first-time land owners are exempt from the 2 percent transfer fee.

New land owners are responsible for paying the fee. Deeds cannot be filed without a stamp from the Land Bank confirming that the transfer fee has been paid. Revenues from this fee are deposited into the Land Bank Fund to pay for the acquisition of public rights to the shores and moors of the island. The Land Bank also may receive appropriations by vote of the county commissioners of Nantucket County or of a Nantucket town meeting; voluntary contributions; or proceeds from disposal of any property or interests. Further, the Bank is empowered to issue bonds and dedicate revenues from the Land Bank Fund toward repayment of debt incurred. A recent bond issue of $11.05 million by the bank was insured by the Municipal Bond Insurance Association, earning an AAA rating (the highest rating available) by both Moody's and Standard and Poor's.

The Land Bank is relatively inexpensive to run because the commissioners serve without compensation. In 1986, operating expenditures totaled $90,253, or less than 2 percent of the income received from transfer fees. Land Bank expenses include salaries and wages for two full-time staff and a part-time advisor; and fees for legal services, appraisals, surveying, printing, auditing, taxes, property maintenance, travel, and general office expenditures (supplies, postage, telephone, etc.).

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

The Land Bank of Nantucket has met with widely acclaimed success since its inception in 1983. As of 1986, it has raised total revenues of close to $11 million and has acquired 761 acres of land in Nantucket. The source of funds for the Land Bank seems particularly appropriate for open space preservation because real estate development is the root cause of

declining open spaces. Further, transfer taxes have a built-in inflation adjustment--revenues increase as the price of property increases.

Despite its success, the Land Bank has also met with some opposition. The biggest argument against the transfer fee stems from the notion of double taxation. Those who oppose the Land Bank see the fee as a double tax paid initially by the developer who buys the land (a cost that is often passed on to the buyer) and then again by the consumer at the time of purchase. Thus, homeowners pay the fee twice. Some say this double payment, in turn, exacerbates the rising housing costs on the island.

Despite this opposition, the Land Bank has been extremely successful in fulfilling the needs of Nantucket County. The Bank appears to be suitable for a wide range of land and estuary management, provided (1) the locality has a sufficient real estate base to fund the program and (2) state legislation does not prohibit or restrict this type of fee. Although the use of land transfer fees is appropriate in the case of land management, other types of fees may prove more appropriate for different localities and different program objectives. Overall, land banks can be a very useful tool to help finance estuary and land management programs.

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Chapter III

Occupancy Tax: Dare County, North Carolina

Dare County, North Carolina, is a rural coastal county that experiences tourism demands in the summer that strain its infrastructure. To remedy this situation and minimize impacts on permanent residents, the County raised $1.6 million in a year and a half by levying a 3 percent occupancy tax on all hotels, motels, and rental houses. The County has used the receipts from the occupancy tax to begin planning for a new wastewater treatment plant. Occupancy taxes link recreational users of coastal environments to programs that improve users' enjoyment of area resources. These taxes, therefore, appear widely applicable for financing marine and estuarine protection and restoration programs in similar regions.

BACKGROUND

Dare County is located in the northern coastal region of North Carolina known as the Outer Banks. Miles of pristine coastline and secluded coves, as well as some of the best sportfishing in the world, have made the Outer Banks one of the most popular summer vacation spots in the mid-Atlantic. These attributes draw over 2 million visitors to the area each year. This popularity has resulted in large increases to Dare County's permanent population as the commercial, residential, and industrial sectors have expanded to meet the increasing demands of tourism. Although tourism is by far the largest industry, the commercial fishing industry also contributes to Dare County's economy.

Dare County comprises five towns: Nags Head, Kill Devil Hills, Southern Shores, Kitty Hawk, and Manteo (the county seat). Nags Head, the largest of the towns, is the only incorporated township with its own government. The County's population has more than doubled since 1970 and now stands at 22,000. During the peak summer months of June, July, and August, however, the population swells by a factor of 10 to over 200,000. This enormous inflow of temporary residents plus the rapid growth of permanent residents has placed excessive

demands on Dare County's ability to provide the necessary public services. By 1985, the County faced large capital needs such as a new wastewater treatment plant, a new water supply plant, a new school, and a new jail. The occupancy tax was levied to raise money to address these issues.

ADMINISTRATIVE SETTING

Dare County, like most county governments, relies primarily on property taxes for most of its income. Although the County's total property value in 1985 was $1.2 billion, representing an increase of 55 percent since 1983, because of the low ad valorem tax rate of 39 cents per $100 of assessed value, the County netted only $7 million from property taxes. This revenue is inadequate to support the billions of dollars of capital needs the County faces in the coming decade.

To raise money, the County considered general obligation bonds as an alternative to occupancy taxes. Under North Carolina law, a municipal government, with approval of the state's Local Government Commission, can issue bonds as long as they do not exceed a debt ceiling of 8 percent of the total property valuation. In 1985, Dare County's total annual debt was $7,000, representing a ratio of debt to total property value of only 0.58. Although this is well below the allowable debt limit, the County decided not to burden its permanent population with the excessive financial burden caused mainly by nonresidents. As a result, alternative sources of revenue were explored. The County considered a real estate transfer tax, a meals tax, and an occupancy tax.

Because North Carolina is not a home-rule state, in which the municipal government receives all its taxing powers and authorities from the state constitution, Dare County needs state legislation to enact a new tax. The County originally proposed a meals tax, a 3 percent occupancy tax, and a 3 percent real estate transfer tax. However, the restaurant lobby successfully eliminated the meals tax from the proposed legislation. The transfer tax faced similar opposition from the real estate lobby, which successfully reduced the transfer tax to 1 percent. The County was able to maintain the 3 percent occupancy tax, and in April 1985, the state authorized Dare County to levy the occupancy tax and the real estate transfer tax.

PROGRAM CHARACTERISTICS

The occupancy tax applies to all motels, hotels, cottages, and rental units, including time-share condominiums. The tax is based on the total nightly, weekly, or monthly bill and only applies to nonresidents. Proprietors are required to remit taxes to the County at the end of every month. The law applies strict penalties for owners who are delinquent or who fail to pay the tax at all.

Although tax collections go into the County's general fund, the proceeds can only be used for capital purposes including a broad range of services from school buildings to public fishing wharfs. Of the total collection, 3 percent covers administrative costs, the County retains one-third, and the remainder is allocated, based on property value assessments, among the five towns. To assure that the occupancy tax is properly administered, the County created a position in its tax office; the person in this position will ensure that the tax payments are collected promptly, deposited into the County's treasury, and disbursed efficiently among the five towns.

PROGRAM RESULTS

The County collected $1.6 million between January 1986 (when the occupancy tax went into effect) and April 1987. This funding has allowed the County to begin planning for the construction of a much-needed wastewater treatment plant.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

An occupancy tax appears broadly applicable to finance both capital and operating estuary programs. This tax provides an equitable way to translate the recreation benefits associated with clean estuarine or marine waters into cash flows needed to sustain pristine conditions. While other financing programs based on land values or local development charge residents for environmental protection, an occupancy tax spreads the cost of cleanup over tourists and nonpermanent residents who also benefit from improvements. As the estuary or marine environment improves and tourism grows, revenues increase as well, providing a long-term source of beneficiary financing.

In many areas, an occupancy tax has the potential to raise a great deal of revenue. In 1986, for example, the New York City Office of Visitor Information estimated that visitors spent

approximately $1.5 billion on lodging in the city. These expenditures could serve as an effective tax base to support a substantial cleanup effort in New York Harbor or Long Island Sound.

Table 4 illustrates the revenue potential of various tax rates and expenditure bases (lodging demands). A relatively modest 1 percent tax could raise $15 million a year; a 5 percent tax could raise as much as $75 million per year. If a broader region were included, lodging tax receipts would increase substantially. It should be noted that these estimates are made without regard for the effects of taxes on demand.

Table 4. Revenue-Generating Potential From an Occupancy Tax in New York City (in millions of dollars).

	Total Tax Base (millions)		
Tax Rate	1,500	1,750	2,000
1%	15	17.5	20
2%	30	35.0	40
3%	45	52.5	60
4%	60	70.0	80
5%	75	87.5	100

Before implementing occupancy taxes, care must be exercised to set rates that balance government and private revenue needs. High tax rates will inevitably generate dissatisfaction among local businesses. Too high a rate could shift the demand for lodging to neighboring jurisdictions without occupancy taxes. As with any new mechanism to raise revenues, it is important to educate the public about the benefits they will receive.

IMPLEMENTATION PROBLEMS

Despite advantages of occupancy taxes, institutional constraints may make a county or local occupancy tax difficult to implement. Most states require local governments to obtain approval from state legislatures or local citizens through referendum. As the Dare County example illustrates, heavy opposition to this type of tax by interest groups and businesses could hinder passage of the legislation.

Another potential problem with occupancy taxes is the difficulty of enforcing them. Proper enforcement requires an inventory of all hotels, motels, and rental units, as well as knowledge of the occupancy rate for each month and each establishment's rate structure. Regardless of these problems, managers of estuary programs and coastal resources should consider occupancy taxes in many areas with high tourism rates.

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Chapter IV

Tobacco Taxes: Washington State

The State of Washington raises $40 million a year to finance water pollution control facilities and cleanup activities by levying a combination of tobacco and sales taxes. In 1986, the Washington legislature passed the Centennial Clean Water Act, which established an eight cent per pack tax on cigarettes, a 16.75 percent sales tax on tobacco products sold at the wholesale level, and a sales tax on water pollution control equipment. The law dedicates half these revenues to the control of wastewater discharged directly into marine waters. The other half is applied to various water quality initiatives such as groundwater protection. Although tobacco taxes are entirely unrelated to the technical programs they would finance, the concept of commodity taxes appears to have wide applicability to the finance of marine and estuarine protection programs. Because such new taxes are never easy to institute, this program has the greatest likelihood of success at the state level.

BACKGROUND

Washington State has grown rapidly during the last decade, particularly in the cities bordering Puget Sound such as Bellevue, Tacoma, and Seattle. This rapid development in all sectors of the economy has greatly stressed the state's marine and estuarine environments. Parts of Puget Sound, for example, have been degraded as a result of urban runoff and the direct discharge of untreated wastewater into marine waters.

In 1985, the Washington legislature enacted several statutes aimed at correcting the state's water quality problems. These laws focused on enhancing wastewater treatment capabilities, establishing groundwater management areas, and promoting local groundwater protection programs. Most importantly, the statutes established the Puget Sound Water Quality Authority (PSWQA). This Authority was directed to prepare and implement a management plan for restoration and continued protection of Puget Sound. The PSWQA was also given the power to create shellfish protection districts.

Although these actions set in motion the mechanisms to effectively deal with the state's water quality problems, the House and Senate could not agree on how to finance the needed facilities, such as wastewater treatment plants. One financing measure under serious consideration was giving bonding authority to the PSWQA. However, the state legislature could not decide on the exact terms of such a measure. Under pressure from local and county governments, as well as the U.S. Environmental Protection Agency, the state legislature passed the Centennial Clean Water Act.

PROGRAM CHARACTERISTICS

The Centennial Clean Water Act (SSB 4519 - Chapter 3 law of 1986) is designed to provide financial assistance to local governments for the planning, design, acquisition, construction, and improvement of facilities to control water pollution. To finance these activities, the Act established the cigarette, tobacco, and sales taxes described earlier.

The revenues received from these taxes are deposited in a dedicated Water Quality Account maintained by the state treasury. A state study determined that at least $40 million a year is needed to adequately address Washington's water quality needs until fiscal year 1989. Thereafter, $45 million would be required. If revenue from the tobacco and sales taxes falls short of these goals, the state has pledged to contribute the difference from general revenues.

The Water Quality Account is administered as a revolving-loan fund (with some grants allowable), with the following allocation to project purposes:

- 50 percent for pollution control facilities that discharge directly into marine waters;
- 20 percent for sole source aquifer protection;
- 10 percent for protection of freshwater lakes and rivers;
- 10 percent for control of nonpoint pollution activities;

Use of remaining funds is determined by the State Department of Ecology for projects not otherwise covered.

The Department of Ecology is the primary agency involved in distributing the funds. The criteria for distributing grants and loans, as well as the guidelines for project selection and for application of such funds by local governments, will be developed in the next six to eight months through public hearings.

PROGRAM RESULTS

Between April 1986 when the taxes went into effect and February 1987, the Department of Revenue collected slightly over $32 million. Projections for the remainder of 1987, and 1988 and 1989 are approximately $36 million per year. This projection suggests that $4 million per year will be required from general revenues.

No loans or grants have been made yet. Expenditures so far have been limited to two government studies. The Office of Financial Management spent $150,000 to develop a plan for state financial assistance, and the Department of Ecology spent $250,000 to develop an assessment of water quality needs in the state. The study reports, published in January of 1987, will form the basis for deciding the appropriate level of state assistance. They will also aid in the long-term planning for how to meet the state's increasing water quality needs over the next 15 to 20 years. In the future, all proceeds, except a 3 percent allowance for administration, will be spent locally on activities or facilities to control water pollution.

In 1987, the Washington state legislature appropriated approximately $81 million for the Water Quality Account. The majority of this fund, $75 million, is dedicated to local grants.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

Although cigarette or tobacco taxes are not directly related to users or beneficiaries of estuaries, these taxes can generate tremendous amounts of revenue which then can be dedicated to almost any program, at the discretion of legislatures or local governing bodies. In fact, all 50 states tax either cigarette or alcohol sales and dedicate revenues to a variety of activities including education, transportation, welfare, and local grants-in- aid. In 1984, the total state tax revenues from cigarette sales was $4.3 billion dollars.

In 1984, for example, Maryland raised $66 million from taxes on tobacco products. Based on 1984 cigarette sales, an additional tax of five cents per pack would yield $26.5 million a year, whereas an extra 15 cents per pack would generate annual revenues of $79.5 million (see Table 5). These revenues could be dedicated to cleaning up Chesapeake Bay; however, using some of the added revenues for other high-priority state initiatives could make such taxes more politically feasible. It should be noted that these revenue projections assume that increased prices (due to taxes) have no effect on sales. In practice, sales of cigarettes would fall off as prices increase.

Table 5. Revenue-Generating Potential of an Additional Tax on Cigarettes Sold in Maryland.

Tax Base Annual Sales in Million of Cigarette Packs (1984)	Tax Cents Per Pack 05	10	15
429	$21,450,000	$42,900,000	$64,350,000
477	$23,850,000	$47,700,000	$71,550,000
530	$26,500,000	$53,000,000	$79,500,000
583	$29,150,000	$58,300,000	$87,450,000
641	$32,050,000	$64,100,000	$96,150,000

Source: Apogee Research, from state tobacco tax data presented in Advisory Commission on Intergovernmental Relations, Measuring State Fiscal Capacity: Alternative Methods and Their Uses (September 1986).

In addition to tobacco and sales taxes, other commodity taxes that more closely link users to the programs they finance are potential sources of revenue. A tax on plumbing equipment, for example, was recently proposed in the U.S. Senate, with revenues dedicated to financing improvements in the public water supply. This bill is designed to raise $500 million a year.

A similar tax could be designated to finance estuary cleanup and protection initiatives. For example, a statewide tax on fishing equipment, boat sales or leases, or fish landed could be used as seed money for state-revolving funds dedicated to estuary and marine cleanup and protection.

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Chapter V

Inland Waterways Trust Fund: Nationwide

The federal Inland Waterways Trust Fund was established in 1980 to manage revenues for construction, rehabilitation, and repair of navigation systems on the inland and coastal waterways. The Trust Fund is financed by receipts from a waterways fuel tax. The fuel tax was initiated in 1980 at four cents per gallon, and will increase incrementally so that after 1995, towboats operating on most of the nation's waterways will be paying a 20-cents per gallon tax on fuel.

As of 1987, the Trust Fund had a balance of $300 million. Although money has been accumulating in the Trust Fund since 1981, the balance will be obligated for the first time next year. Outlays from the Trust Fund are based on specific appropriations for eight authorized and one anticipated project, totaling $1.2 billion over the next five to ten years. In 1986, an 11-member User's Board made up of representatives of the barge and shipping industry was created to recommend future appropriations from the Trust Fund. The inland waterways fuel tax charges part of the cost of providing waterborne commerce to those who benefit from the service. Similarly, a tax on fuel pumped at estuarine and coastal marinas could help finance the cleanup of those waters.

BACKGROUND

The U.S. Army Corps of Engineers (the Corps) began construction and maintenance of the nation's inland waterway system in the 1800s. The Corps' original role in the inland waterway system stemmed from the need to link major, established eastern population centers with the growing agricultural and industrial regions in the Midwest. As economic activity moved westward, inland waterways played a pivotal role in encouraging and serving this new growth.

Today, this system consists of over 21,000 miles of waterways supported by 225 locks and dams. In 1985 the nation's waterways transported 534 million tons of cargo representing

about 13 percent of all intercity freight traffic, most of it consisting of barges carrying bulk goods with low values per ton: coal, petroleum products, grains, sand and gravel, and chemicals.

Traditionally, the Corps has maintained the inland waterways in support of waterborne transportation. Although federal dollars once financed all the construction and maintenance of the nation's inland waters, by the mid 1970s it was clear that federal appropriations could not keep pace with the financial requirements needed to maintain the aging inland waterway system. Nearly 40 percent of all locks operated for commercial purposes are at least 50 years old. The antiquated equipment has resulted in rising operation and maintenance costs, which in turn, has put pressure on funding major rehabilitation projects. Another result is excess delays and processing times to the barge and shipping industry.

ADMINISTRATIVE SETTING

To make the inland waterways more efficient and raise funds for needed repairs, Congress implemented a new user charge. The Inland Waterways Revenue Act of 1978 (P.L. 95-502) instituted fuel taxes to support federal inland navigation programs for the first time in over a century. The original fuel tax of four cents per gallon in 1980 increased by two-cent increments in 1982, 1984, and 1986. The Water Resources Development Act of 1986 (WRDA) increased the tax incrementally so that by 1995, commercial carriers using the inland waterways will pay 20 cents per gallon. The Inland Trust Fund receives all fuel tax receipts. The tax is dedicated to covering half of all system-wide operation, maintenance, and major rehabilitation of the inland waterways. The Trust Fund is managed by the Treasury Department (in the general fund of the United States). Outlays from the fund are decided by congressional appropriations, based on economic reports prepared by the Corps, with advice from the User's Board.

PROGRAM CHARACTERISTICS

Receipts were overestimated for the early years of the program, due in large part to optimistic shipping projections, unforeseen economic downturns, and unexpected competition from the newly deregulated freight rail and trucking industries. During the first year the tax was initiated (1981), only $25 million in fuel taxes was collected. Even with the two-cent increase in 1984, only $54 million was received. Although full cost recovery was never anticipated, receipts covered less than 10 percent of the total cost to sustain inland navigation. With fuel tax increases to 20 cents a gallon by 1995, the fund is projected to reach $600 million by 2002.

Although the revenues from the fund have been accumulating since 1980, it was not until the WRDA that expenditures from the fund were appropriated. The Act appropriated $1.2 billion from the Trust Fund for eight authorized projects and one anticipated project.

IMPLEMENTATION ISSUES

Although a fuel tax does link beneficiaries of a program to its costs, and can be a tremendous revenue source, there are several issues involved in implementing such a tax. Four issues figured prominently during the debates over implementing a new fuel tax: what will users get in return; how much freight will shift to other modes of transportation; how will the shipping industry be affected; and how will receipts from the tax be allocated. Implementation of the inland waterway fuel tax was helped along because waterway users demanded construction of new facilities in return. This give-and-take between public and private interests, and the public education that must accompany such negotiation, are critical to the success of implementing a new tax.

Analysts predicted that competing rail and truck transport would gain significant traffic if a waterway fuel tax was imposed. Since the advent of the tax, it has been difficult to separate internodal shifts because of price competition from the general downturn in traffic due to other economic forces.

Concerns were also raised that the barge industry, which was already facing economic pressures from excess capacity, could ill afford to shoulder the added cost burden of new fuel taxes. Indeed, whether due to fuel taxes or overall economic trends, the barge industry was consolidated and contracted somewhat since the mid-1970s. Ability to pay taxes, given the economic position of the water transportation industry, is a valid concern.

Finally, how the money should be allocated once it is collected can be one of the most controversial aspects of implementing a fuel tax. Should allocations from the Trust Fund be distributed evenly or should allocations be based on some level of performance? The WRDA created the User's Board to deal with such issues.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

Creating a trust fund to manage fuel tax receipts from the sale of marine fuel is an appropriate way to finance marine and estuarine protection projects. A fuel tax assessed at all coastal and estuarine marinas not only represents a recurring source of substantial revenue, but also links users of such waters to the maintenance of that water's quality. Such a fuel tax could apply to both commercial vessels and recreational boaters. Table 6 indicates the level of annual revenue that could be raised given reasonable tax rates and marine fuel consumption nationwide. It should be noted that pertinent elasticities of demand are not known and therefore not included in the revenue estimates shown.

Table 6. Revenue-Generating Potential of a Fuel Tax Based on All Fuel Pumped for Marine Purposes in an Average Year (based on fuel prices of $1/gallon).

Gallons Pumped (in Billions)[a]	Tax (cents/gallon) .01	.04	.08	.12
1.00	$10,000,000	$40,000,000	$80,000,000	$120,000,000
1.25	$12,500,000	$50,000,000	$100,000,000	$150,000,000
1.75	$17,500,000	$70,000,000	$140,000,000	$180,000,000
2.00	$20,000,000	$80,000,000	$160,000,000	$240,000,000

[a]In 1985, one billion gallons of fuel were pumped for marine purposes.

Marine fuel taxes could be implemented on a regional level. The fuel tax in Oregon Inlet, North Carolina, for example, illustrates the revenue potential of a single area. The area of Oregon Inlet located at the mouth of Pamlico and Albermarle Sounds, North Carolina, is served by two major marinas. Table 7 illustrates the revenue-generating potential of various fuel tax alternatives applied to commercial and recreational users.

Table 7. Fuel Expenditures of Commercial and Recreational Boating Users for Oregon Inlet, North Carolina (based on fuel prices of $1/gallon).

(Cents Per Gallon) Expenditure Category	Total Gallons Pumped	Fuel Tax .01	.03	.06
Recreational	2,643,000	$26,400	$79,300	$158,600
Charterboat/Headboat	366,000	$ 3,600	$10,900	$ 21,900
Commercial Fishing	577,000	$ 5,700	$ 7,300	$ 34,600
TOTAL	3,586,000	$35,700	$97,500	$215,100

Source: Army Corps of Engineers Wilmington District, Financial Analysis of Oregon Inlet, 1985.

A 1 percent tax per gallon on all gas expenditures for vessels could net an estimated total of $35,000 a year whereas a 6 percent tax could yield an estimated $215,000.

As good a source of revenue as the fuel tax is, the overall economic effects of new taxes must be considered, not just the taxes' ability to raise revenue. States are protective of their commercial fishing industries, especially on the east coast where coastal boundaries are close. Under a statewide tax scenario, some states might choose to exempt commercial vessels in order to reduce the risk of losing moorage to a neighboring state. Indirect state receipts from declining sales in related sectors would also drop. In Oregon Inlet, for example, if commercial fishing vessels were exempt from the fuel tax, direct tax revenue would decline by up to 20 percent.

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Chapter VI

Oyster Taxes: Maryland and Georgia

Coastal states are becoming increasingly aware of the need to manage and preserve their valuable coastal resources. Pollution and extensive shellfishing, for example, have depleted shellfish beds and decreased harvestable areas, demonstrating the need for better management of these resources. Both Maryland and Georgia have shellfish management programs to maintain oyster harvesting areas. Although the general goals of the programs are similar, the financial mechanisms that fund them differ. The State of Maryland raises revenues for the Oyster Propagation Program by placing a tax on harvested bushels of oysters. In contrast, Georgia provides oyster management through its Shellfish Program in which the state leases commercial harvesting areas, based on a bid procedure and funds allocated from the state legislature. Although both programs have been successful in providing oyster management programs, this case study discusses primarily the more unique program in Georgia. Similar types of severance or renewal taxes on living resources would be applicable for any coastal area with the proper shellfish or fish resources.

BACKGROUND AND PROGRAM CHARACTERISTICS

Since 1983, Georgia has successfully managed its shellfish population through a lease bid program. Unlike most coastal states, Georgia has no open shellfishing areas. The general public must harvest in designated public grounds. Public harvests cannot exceed the daily legal limit of two bushels per person (or six bushels per boat), and the harvester must pick oysters only with hand-held implements.

Commercial harvesters must obtain a lease for state-owned resources from the Georgia Department of Natural Resources, Coastal Resources Division. Leases are awarded on the basis of bids for a specific parcel of land. Any person desiring to lease a state-owned oyster bed must submit an application indicating on a National Oceanic and Atmospheric Administration

chart the area to be leased, the names of adjacent landowners as designated in the county tax records, plans for working the beds, and any other information the department may require. If based on such factors as pollution conditions and shellfish base, the state determines an area is suitable for leasing, the state will offer the area in a competitive bidding process. A "good faith" fee of $50 is required from the shellfishing applicant and is returned if the applicant is unsuccessful at securing a lease. If the applicant is successful, the fee is applied to the amount the applicant owes to the department as per the terms of the lease.

The bidding procedure requires that each bidder submit a shellfish resource management plan. Management plans are judged on the basis of various criteria including provision of culch material (habitat substrate), transplantation of oysters from unapproved growing areas, and shell deposition. The winning bid is chosen according to the most advantageous combination of lease payments and the strength of the management plan. Lease terms last up to a maximum of 15 years. It should be stressed that this program is not designed to generate revenue for the shellfish program, but to ensure the proper management and use of Georgia's publicly owned shellfish beds. In fact, bids that did not generate much revenue but proposed exceptional management programs have been chosen over more lucrative bids that proposed weaker management programs. In effect, the program substitutes private expenditures for public ones, because significant public management costs would be necessary without private management plans.

The leasing and oversight of shellfish beds is administered by the Shellfish Program which is part of the Coastal Resources Division of the Department of Natural Resources. The Shellfish Program, funded by approximately $100,000 of state appropriations, oversees programs for clams and other shellfish as well as oysters. The cost of administering the leasing program falls within this budget.

The leasing program itself generated $5,700 in 1986 and $5,500 in 1987. Although this is a small amount, the true benefits of the program are nonmonetary. They include the rebuilding of Georgia's once prosperous commercial shellfish industry as well as the provision for and sound management of Georgia's valuable oyster resources.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

In general, the Georgia Department of Natural Resources has found the lease program to be a successful way to ensure oyster management. Further, the program accomplishes this goal with minimal state oversight. Only occasionally will a lessee neglect to fulfill a part of the management contract. These incidents generally have been cleared up with warning letters. This type of combined revenue/management program could be useful to manage natural resources, such as fish and shellfish, in other areas with appropriate resource bases and commercial harvesting demand.

In contrast to Georgia's program, the State of Maryland raises money to fund the Oyster Propagation Program by actually taxing commercial harvesters on the number of bushels taken from the beds. The tax is 45 cents per bushel of oysters that remain in state, and an additional 15 cents per bushel on oysters leaving the state. In 1986, Maryland raised $600,000, and expected revenues for 1987 are $800,000. The state uses these revenues to provide culch, seed oysters, and a proper habitat in order to ensure continued quality and abundance of oyster beds.

Ultimately in both programs, commercial harvesters bear the financial burden of their activities. But while Maryland directly administers its program, Georgia transfers management responsibility to the harvesters. Consequently, the Maryland program may have greater flexibility to estuary management in that revenues from the oyster tax could be diverted to other uses. Georgia's program is restricted to the management of living resources of commercial value. The Georgia bid/lease idea could be adapted as a revenue-generating program by eliminating the management criteria and evaluating bids strictly on a dollar basis. These revenues could then finance a state-run oyster management program or any other aspect of estuary management.

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Chapter VII

Tax Increment Financing District: Orlando, Florida

The City of Orlando, Florida, created a Community Redevelopment Trust Fund in 1982 to carry out the redevelopment of declining areas in downtown Orlando. Revenue bonds totaling some $19 million were issued to finance the public investments necessary for this project. The incremental increase in property tax revenues expected from redevelopment was pledged to service the debt incurred. Similar tax increment financing techniques might be effective ways to fund urban or rural drainage and stormwater runoff projects adjacent to estuarine or marine waters.

BACKGROUND

The City of Orlando is part of the three-county Orlando Metropolitan Statistical Area (MSA) consisting of Orange, Osceola, and Seminole Counties. The city itself accounted for 143,000, or 17 percent of the MSA population in 1985. Prior to 1967, the MSA economy was based upon agriculture and citrus products, tourism, light manufacturing, and industries related to the space program at the nearby Kennedy Space Center.

More recently, however, Orlando has grown considerably as a result of Disney World, high-tech industry expansion, and increased manufacturing. In the period from 1970 to 1985, the MSA population increased by 90 percent to nearly 862,000. A significant portion of this increase was in the prime working group, aged 25-44 years. By 1990, this age group alone is expected to expand by 47.5 percent and the total MSA population will be more than one million.

But the majority of this growth has been in the outer areas; the center of the city, defined as a 569-acre area, remained underdeveloped. In 1982, the city aggressively sought to improve this area through the application of Tax Increment Financing (TIF). That is, the development was to be funded by the increase in property tax revenues resulting from higher assessed values due to the development.

ADMINISTRATIVE SETTING

There are two agencies with responsibility for the economic health of downtown Orlando: the Orlando Downtown Development District and the Orlando Community Redevelopment Agency. The first authority has jurisdiction over approximately 1,000 acres in the heart of downtown Orlando and is governed by a five-member board appointed by the mayor for three-year terms. The board has ad valorem taxing powers. The second agency, the Orlando Community Redevelopment Agency, was created in 1980 by the City Council when the existence of a blighted area suitable for redevelopment was identified within the larger Downtown Development District. The City Council is responsible for the Redevelopment Agency and its program of economic regeneration.

In 1982, the Council adopted a Redevelopment Plan that outlined a set of programs to be undertaken over an initial 10-year timeframe. The plan included upgrading of the aging infrastructure system (water, sewer, etc.), improvement of traffic circulation, creation of additional economic opportunities, additions to the parking system, development of housing, and enhancement of pedestrian areas. Simultaneously, the Council established the Community Redevelopment Trust Fund to manage revenues for redevelopment projects.

PROGRAM CHARACTERISTICS

The Redevelopment Agency floated several revenue bond issues to finance the investments planned for the area. These bonds are not a general obligation of the agency or of the City of Orlando; they are secured by an irrevocable lien on the increment in property tax revenues and on interest earned by the Trust Fund holding those receipts.

For each property within their jurisdiction and within the redevelopment area, the authorities pay annually into the Trust Fund 95 percent of the difference between ad valorem tax revenues actually received and the ad valorem tax revenues that would have been received under the current millage rate had assessments remained at January 1, 1981, levels; i.e., 95 percent of the increase in property tax revenues of each taxing authority. January 1, 1981, was chosen as a perpetual base of reference. Millage rates are a taxation expressed in mills (1/10 cent) per dollar.

The aggregate assessed valuation of taxable real property in the Redevelopment Area as of January 1, 1981, (the "frozen tax base") was about $136 million. By September 1984, the final area valuation was in excess of $237 million; by January 1985, assessed value of property in the Redevelopment Area had grown to over $363 million. Based on this increase in value, the tax increment revenues contributed to the Trust Fund were $940,000 in 1984, climbing to $2.3 million in fiscal year (FY) 1986.

Significant building activity has continued in downtown Orlando with construction of new buildings and renovation of many existing structures. Based on this growth, projections for future years indicate annual payments to the Trust Fund of $2.9 million in FY 1987, growing steadily to $6 million in FY 1990.

Actual achievement of the projected increments in tax revenue depend, of course, on the millage rates adopted by the participating taxing authorities and the realization of anticipated increases in property tax values due to development and redevelopment in the area. To estimate tax levies, projects were segregated into three categories on the basis of their estimated likelihood of occurring (Most Probable, Probable, and Uncertain Probability). Estimates were then made of the potential additional value added to the original tax base (See Table 8).

Table 8. Value Added by New Construction and Major Rehabilitation to Downtown Assessment Base (for the Period 1986-1990)

Probability of Occurrence	New Construction	Major Renovation	Total
Most Probable	$144,305,416	$15,509,100	$159,814,516
Probable	141,771,119	1,785,000	143,556,119
Uncertain Probability	16,817,250	170,000	16,987,250
Total	$302,893,785	$17,464,100	$320,357,885

On the basis of these estimates, total tax levies for a given period can be generated and sensitivity analyses can be performed. In the case of Orlando, total levies were relatively insensitive to changes in the development rate (see Table 9), but, as they would be for any region, revenues were sensitive to changes in the property tax rates, or millage rates (see Table 10).

Table 9. Projected Tax Levy Scenarios for Varying Development Rates (Thousands of Dollars).

Fiscal Year	Cumulative Value of Tax Levy by Probability		
	Most Probable	Probable	Uncertain Probability
1984-85	$ 1,061	$ 1,061	$ 1,061
1985-86	2,390	2,390	2,390
1986-87	3,003	3,000	3,003
1987-88	3,620	3,657	3,658
1988-89	3,997	4,473	4,483
1989-90	5,014	6,224	6,320
Total	$19,084	$20,807	$20,914

Table 10. Projected Tax Levy Scenarios for Most Probable Development, Varying Millage Rates (Thousands of Dollars).

Fiscal Year	Tax Levy		
	Base Millage Rate	+ 5 Percent	-5 Percent
1984-85	$ 1,061	$ 1,114	$ 1,008
1985-86	2,390	2,509	2,270
1986-87	3,003	3,153	2,852
1987-88	3,620	3,801	3,439
1988-89	3,997	4,197	3,797
1989-90	5,014	5,265	4,763
Total	$19,084	$20,038	$18,130

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

Tax increment financing has been used by other jurisdictions for many needs. Davenport, Iowa, for example, used its TIF District to finance a major highway interchange in an area slated for development. Clearly, tax increment financing is appropriate for areas in which substantial new development is fairly certain to occur in the wake of other public investments. Cleaner estuarine or near coastal environments, for example, could boost neighboring property values and create a tax increment to support continued environmental protection programs.

The disadvantage of tax increment financing is that, given its dependence on development that has not yet occurred, revenues are relatively uncontrollable and uncertain. Supplementary revenue sources may be necessary, in some cases, if increases in ad valorem tax revenues are inaccurately projected.

The advantage of tax increment financing, of course, is the relative "painlessness" of the exactions--payment is not added to regular taxes, as is the case in special assessment districts, but diverted or earmarked from ad valorem taxes that would have been paid in any case.

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Chapter VIII

Sport Fishing License: Chesapeake Bay, Maryland

In response to deteriorating water quality in Chesapeake Bay, the State of Maryland began a five-point program to improve the Bay's water quality conditions and manage its abundant natural resources. As part of this program, the state instituted the Chesapeake Bay Sport Fishing License plan in January 1985. In so doing, Maryland became the first east coast state to initiate tidal water licensing of anglers. Fees collected from sport fishing licenses are credited to the Fisheries Research and Development Fund and will be used to propagate and conserve native fish stocks. In 1986, this program raised $1.1 million. The ultimate goal of the program is to improve sport fishing experiences and to aid research concerning tidal fishery resources. Fees on sport fishing licenses could generate considerable revenues for estuarine and marine management, depending on the strength of the regional sport fishing industry.

BACKGROUND

Chesapeake Bay is one of the most precious estuarine resources in North America. The value of the Bay can be measured in terms of its environmental, recreational, economic, and cultural resources. The Bay, for example, is a rich source of shellfish, crabs, and finfish, and provides numerous recreational opportunities for boaters and campers. It is also home to two major shipping ports.

By the mid-1970s, signs of stress on the Bay and its resources were brought to the attention of state and federal authorities by concerned citizens. The U.S. Environmental Protection Agency (EPA) undertook a seven-year study to determine the factors contributing to the decline in conditions in the bay. The EPA study found that conditions were deteriorating because of both point and nonpoint sources of pollution.

In an effort to reverse the long-term decline in water quality in Chesapeake Bay, the federal government, Maryland, Virginia, Pennsylvania, and the District of Columbia entered into the Chesapeake Bay Agreement. This agreement called for the preparation and implementation of coordinated plans

to improve and protect the Bay. The result of this effort was the Chesapeake Bay Restoration and Protection Plan, which established basic goals and objectives for improving the water quality of the Bay. Each state then developed its own set of initiatives for cleaning up and managing the Bay and its resources. The Sport Fishing License Program is part of Maryland's effort to maintain the Chesapeake's valuable natural resources.

PROGRAM CHARACTERISTICS

No one is allowed to fish in the Chesapeake Bay or its tributaries up to the tidal boundaries without first obtaining a Chesapeake Bay Sport Fishing License.[2] The basic license is $5.00, effective January 1 through December 31 of each calendar year. In addition to the basic license, special licenses must be obtained for charter boats or for use in conjunction with freshwater licenses. Table 11 outlines the different types of licenses, the number of licenses sold, the cost per license, and the total revenue generated for the first two years of the program.

Table 11. Revenues from the Sale of Sport Fishing Licenses, 1984-1986.

License Type	Number Sold	Cost($$)	Revenue($$)
	1984-1985		
Bay Sport Lic.	40,116	5.00	200,580
w/Freshwater Lic.	66,150	2.50	165,375
Decal	25,556	25.00	638,900
3 day	3,377	2.00	6,754
6-Man Charter Boat	214	200.00	42,800
7-Man Charter Boat	102	240.00	24,480
Total Revenue			$1,078,889
	1985-1986		
Bay Sport Lic.	64,521	5.00	217,222
w/Freshwater Lic.	86,889	2.50	322,605
Decal	33,429	25.00	835,725
3 day	7,490	2.00	14,980
6-Man Charter Boat	242	200.00	48,400
7-Man Charter Boat	103	240.00	24,720
Total Revenue			$1,144,273

Source: Maryland Tidewater Administration, unpublished data.

[2] Exceptions include senior citizens, holders of Virginia Chesapeake Bay fishing licenses, commercial fishers, and children under sixteen, all of whom are exempt from the license requirement.

The program is overseen by the Tidewater Administration of Maryland's Department of Natural Resources. Licenses are issued from this department's Licensing and Consumer Services, County Clerks of the Circuit Court, and licensed agents. Those caught fishing without a license are penalized. The enforcement officer generally issues a warning for first offenses. Fines ranging from $25.00 to $50.00 are assessed for subsequent offenses. In 1985-86 the license fees generated roughly $1.1 million. In contrast, the cost to run the program was nominal. Thus, as a means of generating revenue for the Fisheries Research and Development Fund, the Sport Fishing License plan has been very successful.

Public acceptance has generally not been a problem except in the case of some anglers who resist paying fees for activities that have been free all their lives. However, because license fees will be used directly to improve fish populations, protect and restore necessary habitat for spawning and growth of sportfish species, and increase access to tidal waters, it appears appropriate that fishermen bear the burden of these costs.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

Fees for Sport Fishing Licenses are applicable to fund estuarine and marine management in all areas where both the resources and sport fishing bases exist. The Maryland program is particularly appropriate because the burden is borne by those who are receiving the benefits. In the past, east coast states have been hesitant to require licenses of tidewater anglers because such licenses can shift demand to neighboring states without such fees. However, when 1986 and 1985 are compared, there is no evidence that this shift has occurred in Chesapeake Bay.

The use of license fees to generate revenue for estuarine and marine management could be extended to other recreational activities, such as boating, that also use an estuary's resources. Revenues from such licensing fees could be used as seed money for state-revolving loan funds with the proceeds dedicated specifically to estuary management.

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Chapter IX

Stormwater Utility: Bellevue, Washington

The City of Bellevue, Washington, established an independent government entity--a stormwater utility--to design, construct, maintain, and operate a drainage system to control storm and surface water runoff, urban flooding, and nonpoint source pollution to nearby lakes which, in turn, discharge into Puget Sound. Although it took seven years to build public consensus and begin operations, the utility now operates a series of channels and runoff detention basins; these drainage systems are financed by acreage fees paid by landowners. Using the revenue from these fees, the utility was able to issue $10 million in revenue bonds to build its original stormwater control facilities. The secure, recurring revenues from acreage-based fees, coupled with the management of these funds through an independent utility, appear to be widely applicable to financing programs to control urban nonpoint source pollution in other estuaries and near coastal waters.

BACKGROUND

Bellevue, Washington, is a fast-growing suburb east of Seattle, located on the inland waterways tributary to Puget Sound. The area's prime location has transformed this once-sleepy suburb into a booming metropolis characterized by commercial, residential, and industrial development. The City of Bellevue covers 25 square miles with a population of about 82,000. Population has grown by nearly 80 percent since 1970.

Disruption to the natural drainage pattern of the Bellevue area first received attention in the late 1960s. As development increased and vacant land was replaced with impervious buildings, parking lots, and roads, more rainfall flowed over the surface and less percolated into the ground. This runoff carried surface pollutants into nearby streams. Heavy rainfall and excessive runoff also caused accelerated erosion and flooding throughout the city. Inadequate drainage caused debris to wash into the estuaries around Puget Sound; residual debris restricted in-stream flows during periods of low flow and reduced the local salmon population.

ADMINISTRATIVE SETTING

After seven years of planning, the Bellevue Storm & Surface Water Utility was created in 1974 to address these problems. The legal authority to create such a utility was derived from a 1964 state law that allowed independent stormwater utilities. These special government entities are empowered to collect fees from landowners and borrow against them to finance the construction and operation of control facilities. The entities do not compete for funds with other traditional government services such as education and police protection. In Bellevue's case, the utility is a completely separate entity of city government, legally the same as a sewer or water utility in its organization, responsibilities, and financing, and is accountable to an independent Rates Commission and the Bellevue City Council. The Bellevue Storm and Surface Water Utility maintains a staff of thirty-five, and operates on an annual budget of nearly $4 million.

PROGRAM CHARACTERISTICS

The Bellevue Stormwater Utility is the financial management institution responsible for setting and collecting fees. The utility sets fees on the basis of the type and intensity of development for each parcel of land within its jurisdiction. These parameters approximate the disturbance to the natural percolation of rainwater and the resulting increase in stormwater runoff. The utility developed runoff coefficients based on land area for each of the following five classes:

- Undeveloped - lands not covered by impervious surfaces and free of disturbances to the local hydrology (the flow of water on the surface of the land).
- Light Development - characteristics similar to undeveloped land with less than 35 percent of the land area covered by impervious surfaces.
- Moderate Development - areas with 35-50 percent impervious coverage, where development has had an impact on the local hydrology.
- Heavy Development - properties of fairly intensive development with 50-70 percent of the land covered by impervious surfaces.
- Very Heavy Development - properties that have greater than 70 percent impervious coverage, typified by the Central Business District. This category also includes the majority of the roads and highways.

To initiate operations, the utility staff used aerial photos and property line maps to determine runoff coefficients and parcel sizes for all the properties in Bellevue. The coefficients are multiplied by the property size to determine the final service charge. For example, owners of undeveloped property less than 2,000 square feet pay a total charge of $.08 per month, whereas a moderate development with approximately an acre of land (40,000 square feet) would pay $3.28 a month. A heavy development of 98,000 - 100,000 square feet would pay $15.60 per month. In 1987, the average household bill was about $6.00 per month.

If a developer provides some type of runoff control system such as on-site detention basins, development classification is reduced. Because all new development in the city is required to provide such detention systems, there are few new customers in the high rate classifications.

Revenue Potential

The total annual revenue that could be expected under this or a similar plan depends on the unit rates and total acreage for each level of development. Table 12 illustrates the sensitivity of annual receipts from a 50,000-acre community given different levels of development and fee structures. If 80 percent of the land is undeveloped (the first development scenario) and fees are modest (the base fee schedule), about $1.3 million would be generated each year. On the other hand, if most of the land is heavily developed (the last development scenario) and fees are more than doubled (the third fee schedule), revenues could increase by a factor of 5 to $7.4 million a year. At the same time, the cost for runoff control on underdeveloped lands would probably be less than the cost for more developed lands.

Table 12. Annual Revenues for a Community of 50,000 Acres Under Five Hypothetical Development Scenarios and Three Hypothetical Fee Schedules.

Percent of Total Land Area				Fee Schedule Millions of Dollars/Acre/Year by Development Density		
	Undeveloped	Medium	Heavy	Base x Base[a]	Base x 1.5	Base x 2.25
Scenario 1	80	10	10	1.3	2.0	3.0
Scenario 2	50	25	25	1.9	2.9	4.3
Scenario 3	25	50	25	2.2	3.2	4.9
Scenario 4	25	25	50	2.6	3.9	5.8
Scenario 5	10	10	80	3.3	4.9	7.4

a $1.60 per acre per month for undeveloped land, $3.28 per acre per month for moderately developed land, and $6.24 per acre per month for heavily developed land.

Other Sources of Revenue

Although rates charged on property within the utility's boundaries provide the majority of revenues, the utility also has authority to raise money in other ways. For example, any new development must purchase a drainage permit. The fees from these permits support enforcement and inspection of new water control facilities. Developers also pay fees for expansion, depending on the type and size of the project. A "latecomer provision" charges new developers a "buy-in" fee for the use of facilities already in place. In lieu of a cash fee, the latecomer provision allows new developers to install a drainage system consistent with the city's drainage management plan. This provision allows the utility to expand at no additional cost to itself. A portion of each year's fees finances the operation of the utility. The remainder is either reserved for emergencies or dedicated to repay revenue bonds issued to finance capital facilities.

HOW SUCCESSFUL HAS THE PROGRAM BEEN?

After nearly 11 years in operation, the program has been deemed a great success not only by the utility's standards, but more importantly, by the residents of the city. In fact, many other cities have used the Bellevue Utility as a planning model. Revenues from rates have grown from $568,200 in 1979 to $3.4 million in 1985. As of 1985, the utility had 25,000 accounts that have helped finance nearly $16 million in capital improvements. Including developer contributions under the latecomer provision, capital improvements are estimated to range between $32 and $40 million.

Storm and surface water runoff have been greatly reduced resulting in declining flood damages, as well as a general improvement in water quality. Fish kills are no longer as prevalent as they were in the mid-1970s and the salmon fishery has rebounded. The flooding of downtown Bellevue is no longer a common occurrence, as it was before the drainage system was implemented. In addition, complaints of basement floodings to city government have declined from 18 in 1980 to none in 1986.

IMPLEMENTATION OBSTACLES

The two most serious problems that Bellevue encountered during the seven years that it took to begin the utility's operation were enlisting community support and working out arrangements with the state on how much it should pay because of highway development.

Public Support

Gaining public support is a difficult task because the concept of a stormwater utility is often misunderstood by the public. In the words of Pam Bissonette (Assistant City Manager), "the public thinks we are taxing rain." Compared to other types of public works, the benefits of a drainage system are relatively obscure. For example, prevention of damages (from flooding, erosion, pollution) is much more difficult to understand, and hence, value, than an unencumbered trip to work on a new highway or the convenience of turning on the faucet and drinking clean water.

Another important aspect of public support is acceptance of the rates charged by the utility. If initial rates are set too high, public opposition could eliminate the program. On the other hand, if rates are set too low, insufficient revenues could delay full implementation. To keep rates low, for example, Bellevue used fees only to finance operations and administration and to repay long-term bonds. The large amount of capital needed to implement the program was amortized over time and financed by issuing revenue bonds.

This source of capital kept the initial rates very low--about $.80 per month for the average household. The rates were kept at this level for three years, a time period that allowed the public to become used to the idea of paying a new utility charge for drainage. Even with such low rates, the utility received about 200 complaints in response to its first set of bills.

Roads and Highways

The status of road and highway properties was the second major consideration in designing a rate structure. Because roads and highways are major sources of runoff, Bellevue treated them as billable property. Roads and highways also benefit from drainage systems that alleviate highway flooding. In the past, the city's Department of Public Works has paid over $800,000 per year and the State Department of Transportation has paid yearly bills of $233,000. These revenue streams constituted a third of the utility's annual income. However as a result of rate increases in 1985, and the emergence of several other drainage utilities throughout Washington, the state challenged all utilities' rights to charge the state. Although the court upheld the right of the utility to bill the state, a compromise was reached requiring the state to pay for only 30 percent of their normal monthly charges.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

Creating a utility that can collect user fees appears to be an attractive way to finance estuarine and marine management programs. The creation of a utility appears most useful for programs operated within specific boundaries, such as urban stormwater control, agricultural drainage, or areawide or municipal wastewater treatment. Utilities supported by user fees raise a steady stream of revenue that is not affected by the uncertainties of traditional local budget processes. Fees can be adjusted in a variety of ways, to account for erratic revenue needs or differences in residents' ability to pay. On the other hand, the creation of utilities can require substantial institutional effort.

Fees can also be a source of local opposition, especially if they affect low income groups disproportionately. In the case of Bellevue, a resolution was adopted that, depending on their particular situation, reimbursed senior citizens and residents below a certain income level up to 70 percent of their drainage bills.

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Chapter X

Water and Sewer Trust Funds: Corpus Christi, Texas

Prior to 1982, Corpus Christi, Texas, financed new water and sewer lines on an ad hoc basis--sometimes the city installed new lines, sometimes developers installed the lines at their own expense. There was no systematic method to ensure that each developer was responsible for his fair share of the costs. To better manage investment in water and sewer infrastructure, the city created four trust funds, two each in water and sewer, with specified fees allocated to each. The trusts receive specified portions of the capital impact fees paid by developers and use these funds to reimburse developers and the city for construction of necessary water and sewer lines. Managing impact fee revenues through dedicated city, county, and state trust funds is a viable way to finance the capital facilities--wastewater treatment plants, stormwater control structures, and the like--needed to support the cleanup goals of estuarine and marine waters. Trust funds, in general, also are useful mechanisms to manage recurring expenditures such as water quality monitoring programs.

BACKGROUND

The City of Corpus Christi has a long history of operating various enterprise funds to account for activities that provide services on a fee basis. These funds are financially self-sufficient and include water, gas, wastewater, and transit services, the airport, emergency medical services, and a public golf center. In 1982, the city set up special trust accounts within the water and wastewater enterprise funds to ensure proper funding and construction of water and sewer lines necessary for new development.

Prior to the establishment of the water and sewer trusts, there was no established policy regarding who (the city or developers) underwrote the cost of constructing lines to service new developments. Regardless of how they were financed initially, subsequent developments could tie into these lines without reimbursing the builders. Although the city usually installed and paid for the largest mains, the lack of a consistent policy led to inequities in the financing of the

infrastructure with later developments paying less than their fair share.

ADMINISTRATIVE SETTING

As a result of disaffection with this ad hoc system, the city began reimbursing developers when they oversized mains or decreased sewer depth to accommodate anticipated future developments. Nonetheless, this system was not considered truly satisfactory and, in 1981, the city created a commission to work out a more equitable policy for financing construction of new water and sewer lines.

The commission, composed of city staff, consulting engineers, land developers, home builders, and a few private citizens, proposed the ordinances that now effectively govern the water and sewer trust funds. The Water Ordinance was approved and became effective in June 1982 and the Sanitary Sewer Ordinance in December 1982.

Four trust funds were established by the 1982 ordinances, one each for major and supporting water lines, and major and supporting sewer lines. The establishment of these trusts has produced more equitable sharing of the costs of new water and sewer lines. The funds from these trusts are available to pay the city for water and sewer line construction and to reimburse developers for construction beyond the public works for which they are directly responsible.

These trusts provide a closer link between those who benefit from the new lines and those who pay for them. All developers pay into the trusts whether they are the first or the last to develop property in an area; all developers who construct water and/or sewer lines that will be used by subsequent developments are reimbursed for the costs they incur on behalf of other developers. Furthermore, residents of established areas underwrite water and sewer infrastructure costs only to the extent that there are funds left over from the operations and maintenance portions of the respective enterprise funds.

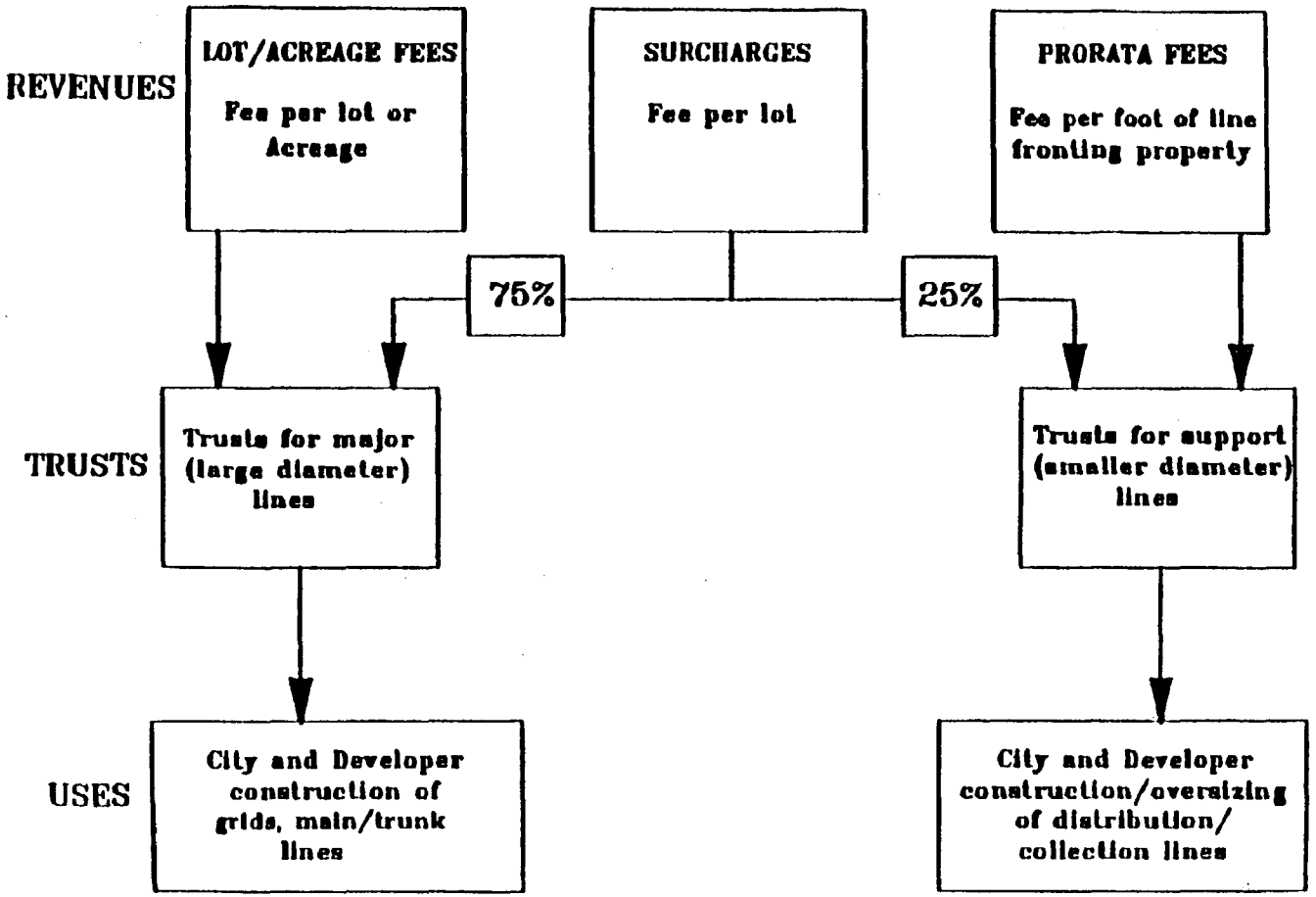
PROGRAM CHARACTERISTICS

The Platting Ordinance of the City of Corpus Christi defines the fees to be paid into the four trusts for construction of water and sewer lines; current fee levels were specified in the 1984 ordinance. There are three types of fees: lot/acreage, surcharge, and pro rata see Figure 1). First, each developer is assessed a fixed fee per lot or per acre, whichever is greater,

FIGURE 1

FLOW OF FUNDS:
WATER AND SEWER TRUST FUND

CORPUS CHRISTI, TEXAS



for water and sewer. Second, developers are assessed a sanitary sewer surcharge per lot for all types of construction and a water surcharge for single family or duplex residential construction. Finally, developers tapping into distribution and/or collection lines that have been constructed by other developers must pay into the appropriate trust funds a pro rata charge per foot of line fronting their property.

To account for inflation, fee levels are indexed to the August construction index published in Engineering News Record. Lot/acreage and pro rata fees are paid prior to the deeding of the final plat, and unit surcharges are paid at the same time as tap fees. In 1984, the combined lot/acreage and surcharge fees amounted to $425 per lot or $900 per acre plus an additional $200 per lot for single family and duplex construction. For all other construction, the 1984 combined lot/acreage and surcharge fees were $400 per lot or $1,200 per acre plus $100 per lot.

PROGRAM RESULTS

As of July 31, 1986, the combined balance of the four trust funds was $653,142. Collected receipts for the year totalled $659,651, whereas only $599,314 was paid out in the form of reimbursements to developers and transfers to other funds.

Although water and sewer public works have not been made into independent utilities in Corpus Christi, the separation of their funding from other city expenses has resulted in user-based financial support. The trusts were an extension of user-based financing to developers of new properties, and appear to be functioning as envisioned.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

The trust funds established in Corpus Christi could be replicated in other cities. The fees collected, though not titled as such, are similar to impact fees and special district assessments and are used in much the same way; that is, they are used to build infrastructure in support of new development. Corpus Christi, however, is not geographically restricted in the use of the trust fund revenues. Thus, the city has more flexibility in allocating funds than would be allowed in assessment or special improvement districts created for similar financing where all funds collected must be reinvested in the same geographically defined district. The flexibility of trust funds similar to those in Corpus Christi might therefore

be administratively advantageous to a city in which development is occurring in several nonadjacent areas simultaneously and in which there are no independent water and sewer utilities.

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Chapter XI

Wastewater System Access Rights: Houston, Texas

In 1983, the City of Houston faced a shortfall in wastewater treatment capacity, coupled with insufficient revenues from sources such as EPA construction grants that historically funded new capacity. In contemplating the problem, the City Council was faced with three alternatives: limit development, increase the financial burden on established users of the system, or find new sources of funds for expansion. While rejecting the choice to restrict development, the Council was reluctant to increase the level of revenue bonds issued and/or to escalate sewer rates for existing customers. The City Council felt that it was more equitable to place the primary financial burden of new capacity on the new customers creating the need for such expansion. Thus, the council opted to create a new revenue source for capital funding--Capital Recovery Charges (CRCs)--derived from fees levied against new entrants into the system.

CRCs are one-time fees, similar to impact fees, collected from either new users requesting access to the wastewater treatment system or old users requiring increases in capacity. In exchange for payment of the CRC, applicants are guaranteed future access to a contracted amount of system capacity that has been reserved for their use. Nearly $70 million has been contributed to the fund in the four fiscal years following the program's inception in 1983. Capacity credits can help achieve two goals often a part of estuarine and coastal resource management programs: capital formation to build pollution control facilities and justifiable management of local growth.

BACKGROUND

The Houston sewer system has 372,400 active service connections serving 1.9 million people. There are 49 wastewater treatment plants and three sludge treatment facilities processing an average daily flow of approximately 250 million gallons.

The City of Houston's sanitary sewer financing system was established in 1976 as a self-supporting enterprise fund paid for primarily through sewer service charges. At that time, the city initiated a major program of capital improvements and enhancements to treatment plant capacity, wastewater collection lines, lift stations, and sludge disposal facilities in order to remedy a capacity shortfall. In spite of these efforts, and primarily as a result of the construction boom of the late 1970s and early 1980s, demand outpaced the wastewater treatment system's capacity. Because of this shortfall, land development was subject to moratoria or severe restrictions in large portions of the city. In addition, projected reductions of federal funds were expected to severely restrict future expansion.[3]

ADMINISTRATIVE SETTING

In May 1983, the City Council passed the Capital Recovery Charges Ordinance mandating the collection of one-time charges for either new connections or increased use through existing connections. The council felt that the city stood to benefit not only from the increased capital for expansion, but also from the greater security provided to developers, because the system would guarantee wastewater treatment capacity to builders who paid the CRC fees. This guarantee would ensure against future sewer moratoria.

PROGRAM CHARACTERISTICS

Builders seeking a building permit must first submit to the wasteload control staff of the Department of Public Works an estimate of the daily wastewater discharge expected from the completed project. If sufficient unreserved capacity is available, the staff calculates the CRC for the projected discharge; the applicant then pays the CRC and applies for the building permit. Payment of the CRC does not guarantee the applicant a building permit, but is only the first of several steps the applicant must satisfy for building permits. The wastewater system staff then reserves the necessary wastewater treatment capacity for the future use of the applicant's project; this capacity is subtracted from the capacity available for future allocation, thus reducing the unclaimed capacity available to later applicants.

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[3] Between 1976 and 1986, almost half of the $800 million expended on the sewer capital plan came from the U.S. Environmental Protection Agency's Construction Grants Program.

The capacity reserved when the CRC is paid is specified in an enforceable written contract between the city and the developer. Furthermore, payment of the CRC does not exempt the builder from paying connection fees, which are paid at the time of hookup. If sufficient capacity is not available, the building permit is denied and the builder must defer his project until new capacity is built or capacity is released by someone with unused access rights.

In addition to the regular capital recovery charges program, the ordinance also provided for acceleration of capital projects. In areas restricted to single-family residential construction and in which there is a substantial demand for capacity, the wastewater control staff can propose an acceleration in construction of new capacity. The proposed expansion is advertised and financial commitments or subscriptions are solicited from property owners in the area. These financial subscriptions are essentially CRCs committed earlier than would normally be the case, possibly even prior to specification of an applicant's proposed development. If the subscriptions received are considered sufficient, the relevant facility is moved forward on the capital improvement plan timetable.

All capital recovery charges are maintained in a separate city account and used solely to finance the construction of new wastewater treatment capacity. CRCs are not available for repairing or replacing existing facilities, nor for extending or enlarging sewer mains unless this expansion is ancillary to the operation of new capacity.

The amount of the CRC depends on the characteristics of the proposed development and on the type of capacity required. Charges depend on whether proposed developments are completely new or whether they will serve portions of existing subdivisions. When the ordinance was passed in 1983, the basic unit charge used to calculate CRCs was $1.448 per gallon per day; it is currently set at $1.606.

The capacity thus allocated is transferable to other parties within the same service area, after payment of a transfer fee, and with the express approval of the system's director. Because such transfers are allowed, there is the potential for a "gray market" in wastewater capacity within any one service area: the price of transferred capacity is not controlled, nor is transfer restricted to applicants on a waiting list.[4]

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[4]In contrast, in a similar program in Upper Merion, Pennsylvania, no transfers are permitted and excess capacity owned by one user can only be returned to the wastewater authority.

Objections by real estate developers to the initial CRC program have not abated but have increased with the recent decline in Houston's economy. Developers view such charges as troublesome additional costs burdening development and profitability. Nonetheless, Houston planners have found that CRCs have proved to be a viable tool for wastewater capacity financing and, though a review may be called for, neither the mayor nor the City Council has revoked support.

PROGRAM RESULTS

During the four fiscal years (FY) 1983-1986, close to $70 million in CRC charges was paid into the CRC fund. The fund earned an additional $11 million in interest. These revenues are associated with about 78 million gallons per day of reserved capacity. Income to both accounts was highest in 1984-1985 and dropped substantially in FY 1986.

APPLICABILITY TO ESTUARINE AND MARINE INITIATIVES

A CRC-based program similar to Houston's is suitable for financing wastewater systems in any area in which involuntary developer fees are acceptable and where anticipated new development is expected to overburden the existing wastewater (or water) treatment facilities. This mechanism, however, is suited only to finance capital facilities. Similar programs have already been established in Escondido, California, and Upper Merion Township, Pennsylvania.[5]

The Fiscal Administrator of the Houston Public Works Department, John Baldwin, notes that one impact of the new program has been a trend toward greater regionalization of wastewater treatment services. Ultimately, the nearly 50 current distinct service areas in Houston will be consolidated into fewer, medium-sized districts. Also, during the initial years of the CRC program, there appears to have been an easing in sewer restrictions. In October 1984, for example, there were 24 totally restricted service areas; this number declined to 15 a year later and to only eight by October 1986. Nevertheless, the use of Capital Recovery Charges fees to finance wastewater treatment systems is a viable method of securing funds for many estuary programs.

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[5] For additional information, see Apogee Research, Inc., Financing Infrastructure , Innovations at the Local Level, published by the National League of Cities, Washington, DC (December 1987).

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Part III. Glossary of Financial Terms

Glossary of Financial Terms

GENERAL TERMINOLOGY

Ad Valorem Tax. A tax based on the assessed value of property.

Arbitrage. The investment of low interest bond or note proceeds at higher interest rates. Arbitrage earnings are fully taxable with few exceptions.

Basis Point. One hundredth (1/100) of one percent in bond yield or interest rate. The difference, for example, between 10 percent and 10.25 percent is 25 basis points.

Bond Bank. A state-chartered organization that purchases the bonds of local governments and secures its own debt with the pool of local bonds.

Capacity Credit. A reservation of future capacity in a public facility purchased generally by private real estate developers prior to the construction of that facility.

Capital Budget. A unified financial plan that accounts for needs and spending levels for a group of current and prospective capital facilities within a broader governmental budget.

Conditional Sale Lease. A lease in which the lessee has the option of applying lease payments to the purchase of a facility for a reduced price. The lessee is owner for tax purposes. For public lessees, it is also called a tax-exempt lease.

Coverage. The ratio of project revenues (net of operating and maintenance costs) to debt service payable in a fiscal year.

Covenants. Specific provisions contained in all bond resolutions and trust indentures to assure maintenance of continued financial and operating performance.

Credit Risk. The risk of default.

Credit Support. The guarantee of timely payment of principal and interest provided by a third party (such as a bank or insurance company) in exchange for a fee. Also called credit enhancement.

Debt Limit. The statutory or constitutional limit on the amount of debt a municipality may issue or have outstanding. Also called a Debt Ceiling.

Debt Service. Periodic repayment of interest and/or principal of an outstanding bond.

Discount. The amount, if any, by which the principal amount of a bond exceeds its market price.

Earmarking. Statutory or constitutional dedication of revenues to specific government projects or programs.

Enterprise Fund. A fund established to account for operations (a) that are financed and operated in a manner similar to private business enterprises--where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges, or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

Impact Fee. A fee assessed against private developers in compensation for the new capacity requirements their projects impose upon public facilities.

Letter of Credit. A contractual obligation by a bank to pay principal and interest in the event of an issuer default.

Liquidity Risk. The risk of a cash shortfall. Specifically, the risk that cash will not be on hand to redeem bonds tendered by bondholders.

Liquidity Support. A contractual obligation (by a bank or an insurance company) to assure refinancing of bond or note principal upon demand by a bondholder at maturity.

Market Risk. The risk to bondholders that changes in the prevailing market interest rates will adversely affect the price of the bonds they hold.

Maturity. The date when the principal amount of a bond is due and payable.

Official Statement. A document prepared by a financial advisor or investment banker describing the legal and financial terms of a bond offering and the pertinent financial, economic, and engineering information about the issuer and the project.

Par Value (or Principal). The face amount of a bond, usually in $5,000 denominations.

Premium. The amount, if any, by which the price of a bond exceeds the principal value.

Rating. A letter designation used by investment services to represent the relative quality or creditworthiness of a bond issue.

Rate Covenant. A trust indenture to maintain rates and charges sufficient to pay all operating and maintenance expenses, annual debt service and reserves, and to provide a specific level of coverage.

Refinancing. The repayment of a debt with the proceeds of a new debt instrument. Also called a Refunding.

Secondary Market. The trading market for outstanding bonds.

Sinking Fund. A fund accumulated over a period of time for retirement of debt.

Take or Pay Contract. A contract obligating a purchaser to pay for a good or service whether or not he or she uses the good or service.

Tax Increment Financing. The dedication of incremental increases in real estate taxes to repay an original investment in improved public facilities that created increased real estate values.

Trust Indenture. The contract between bondholders and an issuer securing the prepayment of debt. It sets forth how all moneys of issuers will be applied to operating costs, debt repayment, reserve funds, and construction funds. Also called Bond Covenant.

User Fee. Payments made by direct users of a facility (or recipients of a publicly provided service) according to individual level of use.

Yield. The net annual percentage of income from an investment. The yield of a bond reflects interest rate, length of time of maturity, and write-off of premium or discount.

Yield Curve. A graph that reflects the market yields on bonds of various maturities from 1 to 40 years. Typically, the yield curve slopes upward, showing progressively higher yields on longer maturities.

FORMS OF DEBT INSURANCE

Short-Term Instruments

Bond Anticipation Note (BAN). Notes issued by public agencies to secure temporary (often partial) financing for projects that will eventually be fully financed (and the BAN repaid) through the sale of bonds.

Grant Anticipation Note (GAN). Notes issued by public agencies to secure temporary financing for projects awaiting the receipt of permanent funding through governmental grants. The GAN is repaid from grant proceeds.

Note. A secured, written promise to repay a debt and interest thereon at a specific date or maturity, usually short-term (less than three years).

Tax Exempt Commercial Paper (TECP). An unsecured debt obligation with a maturity of less than one year, the proceeds of which are used to support current operations or to provide interim financing of capital investments. TECP is usually backed by a letter of credit..

Long-Term Instruments

Adjustable Rate Bond. A bond for which interest paid is adjusted to reflect changes in market interest rates.

Bond. A written promise to repay a debt at a specific date or maturity with periodic payments of interest (customarily every six months).

Callable Bond. A bond subject to redemption prior to maturity at the issuer's option.

Compound Coupon Bond. A bond for which interest is not paid on a regular basis but is deferred and compounded until maturity.

Coupon Bond. A bond with coupons that are redeemable usually on a semi-yearly basis for the interest due for that period.

Deep Discount Bond. A bond that bears either no periodic interest payments (in which case interest is paid in a lump-sum when the bond matures) or interest at a rate well below the prevailing market rate, which is priced for sale at a significant discount of face value to produce a yield that approximates the market rate.

Dedicated Tax Bond. A bond secured by the pledge of the revenues from a particular tax source.

Demand Bond. A bond that the holder may, at his or her option, "put back" or "tender" to the issuer prior to maturity. Also called a Put Bond or Tender Option Bond.

Double Barrelled Bond. A bond secured and payable from both project or system revenues and taxes or general revenues.

Drop Lock Bond. A floating rate put option bond. The interest rate is tied to short-term indices, with a provision for the interest rate to become fixed if certain predetermined conditions are realized in the money market. If the interest rate can be converted to a fixed rate at the option of the issuer, the floating rate put option bond is called a Saddle Bond.

Fixed-Rate Bond. A bond for which the interest rate paid is fixed from the date of issue to final maturity.

Floating Rate Bond. A bond that bears an interest rate that fluctuates, or "floats," on a periodic basis in relation to a predetermined market rate. The floating rate feature shifts the risk of changes in the interest rate from the lender to the borrower. Overall, the shift of the interest rate risk allows the issuer to finance at more favorable rates.

General Obligation Bond. A bond secured by the pledge of the issuer's full faith, credit, and taxing power.

Industrial Development Bond (IDB). A bond secured by the pledge of lease revenue from publicly owned industrial facilities. Also called an Industrial Revenue Bond.

Limited Tax Bond. A bond secured by a pledge of a tax or category of taxes that are limited in rate or amount.

Mandatory Take Bond. A bond that the bondholder is required to sell and the issuer is required to purchase upon expiration of a letter of credit. The terms and conditions of the bond automatically adjust, and the bonds are either remarketed or retired.

Option Bond. A bond that permits the bondholder to tender the issue at specified times to the issuer in return for payment of the principal thereof. Typically a bank, pension fund, or other entity will provide resources by agreement with the issuer in the event that more bonds are tendered than the issuer has funds to pay for.

Option Take Bond. A bond that the issuer can take back before the expiration of the letter of credit by demanding that it be surrendered for purchase. The interest rate is initially fixed for the period that the letter of credit is outstanding. Upon exercise of the take option, the terms and conditions of the bond (interest rate and call features) change based on preestablished criteria, and the bonds are remarketed. If the take is not exercised, the terms and conditions automatically adjust upon expiration of the letter of credit, and the bondholder has the option to put, or is required to surrender the bonds for purchase. Any purchased bonds are then cancelled.

Original Issue Discount Bond. A bond, repayable only at maturity, that bears a reduced interest rate and is sold at a discount to provide a return to the investor. Also called Capital Appreciation Bonds or Deep Discount Bonds.

Put Bond. A bond that contains provisions giving the bondholder the option to tender (or "put") the bond to the trustee for purchase at a specified price, within a specified time period, and under specified conditions. The option is intended to afford the bondholders protection against market price fluctuations and other risks, and may be used to give the bondholders an effective means of accelerating bond payment, even in the absence of a default. Funds to pay for the tendered bonds may be made available from draws on a letter of credit.

Revenue Bond. A bond secured solely by the pledge of project or system revenues, without recourse to any tax support.

Special Assessment Bond. A bond payable from the proceeds of assessments imposed on properties that have benefited from the construction of public improvements such as water, sewer, transportation, and irrigation systems.

Serial Bond. A bond whose principal is repaid in periodic installments over the life of the issue.

Special Service Area Bond. A bond secured by the pledge of the revenues from a special service tax applied to a limited geographic area.

Special Tax Bond. A bond secured by a special tax, such as a gasoline tax.

Stepped Coupon Bonds. Coupon bonds, all of which in a given issue and year will bear the same rate of interest, although they mature serially. The rate of interest will increase, in some cases as often as every year.

Term Bond. A bond with a single maturity date. Serial bonds and term bonds are often combined in one issue.

Variable Rate Demand Bond. A bond bearing an interest rate that floats based on a short-term interest rate index. The bondholder has the right, upon notice, to "put," or demand the bond be purchased by the issuer. The put is normally backed by a letter of credit. A conversion option may be offered under which the bond is converted to a fixed-rate based on an index tied to the remaining term of the bond.

Variable Rate Demand Note (VRDN). A note that usually has a maturity of two to three years. The interest rate is adjusted at predetermined times based on a specific market index. Such notes typically include a minimum interest rate to protect the investor and a maximum to protect the issuer. In addition, VRDNs include a "put" option that enables the investor to tender the issue at "par" (the principal amount due at maturity) prior to maturity. This action ensures the bond will be marketable, even during times of declining market interest rates.

Zero Coupon Bond (ZCB). A bond sold at a discount of par that pays no interest until maturity, when the investor receives the par amount. Changes in the purchase price dictate the effective rate of interest. The key attraction of ZCBs is that reinvestment risk is eliminated. A standard bond, for example, pays coupons at specific rates that the investor must then reinvest, thereby assuming the risk of short-term fluctuations in interest rates. A ZCB, however, effectively reinvests the coupons at the original issue rate. The issuer can, therefore, sell ZCBs at a lower interest rate and simultaneously reduce management costs associated with coupon handling.

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