Elizabeth River Restoration

EXECUTIVE SUMMARY

The Elizabeth River Project

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INFORMATION
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Elizabeth River Restoration

A Watershed Action Plan
to Restore the Elizabeth River

June 20, 1996

This plan was reviewed April 26, 1996 by The Elizabeth River Project's

Leadership Review Board

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Honorable John Warner, United States Senate
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Prepared by the Elizabeth River Project's Watershed Action Team

In Partnership with the Commonwealth of Virginia

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(The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subagencies.)

Overview

This Watershed Action Plan completes a crucial planning phase for the Elizabeth River Project in carrying out its mission of a cleaner Elizabeth River, but by no means represents "the end of the road." The Elizabeth River Project was founded "to form a *partnership* among the communities and all who earn their living from the river, to raise *appreciation* of its economic, ecological and recreational importance, and *to restore the Elizabeth River system* to the highest practical level of environmental quality" (mission statement 1993).

Achieving urban watershed restoration requires thousands of committed people and organizations working patiently over several decades to carry out hundreds of initiatives. The goal of the Elizabeth River Project is to see this long-term effort to fruition. A wide spectrum of interests has been represented both on our Comparative Risk Committees, as they reached agreement on the river's problems in 1994, and on our Watershed Action Team as it set recommendations in 1996. Our committees and intervening public conferences have set forth a promising road map for restoring environmental quality.

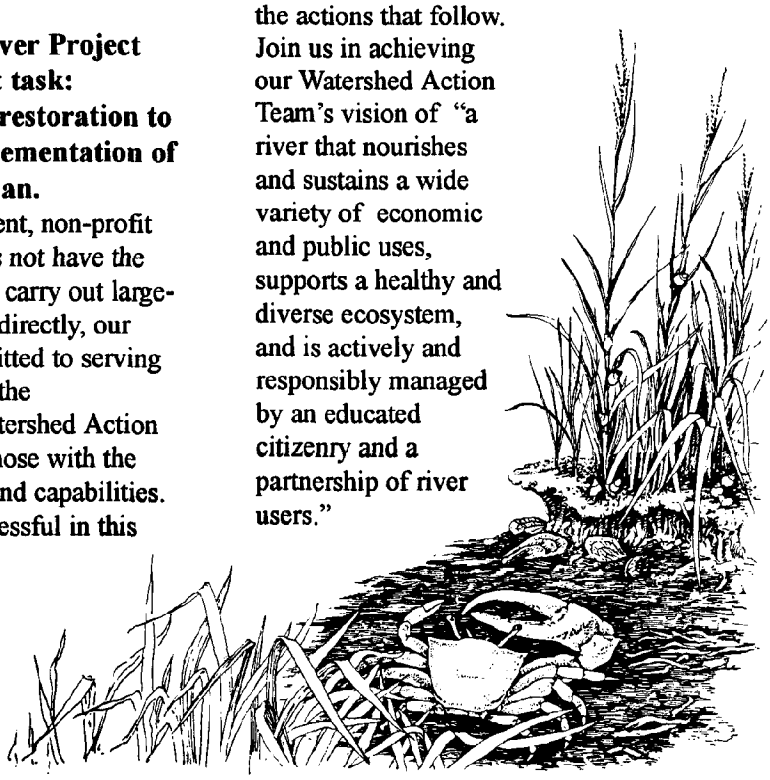
Now the Elizabeth River Project proceeds to the next task: bringing environmental restoration to reality by initiating implementation of the Watershed Action Plan.

While the independent, non-profit Elizabeth River Project does not have the resources or the authority to carry out large-scale improvement projects directly, our Board of Directors is committed to serving in a catalyst role to see that the recommendations of the Watershed Action Team are implemented by those with the most appropriate authority and capabilities. The project has proven successful in this role already by virtue of its commitment to bringing all parties to the table to identify common interests.

The Honorable Becky Norton Dunlop, VA Secretary of Natural Resources, has pledged her commitment to giving "every consideration" to implementation of the plan. The state provided almost $100,000 in direct and contracted support to develop the recommendations. The EPA's Chesapeake Bay Program has awarded more than $80,000 for the Elizabeth River Project to implement the plan, including money for a wetlands restoration we will carry out in partnership with the City of Norfolk.

Congress has authorized a $420,000 study of projects the US Army Corps of Engineers could implement related to the plan (funding pending). The 1996 VA General Assembly approved $250,000 for increased monitoring and $200,000 for removal of derelict vessels in the Elizabeth River over the next two years. The passenger schooner, American Rover, is starting Elizabeth River education for school children.

Our fundamental challenge is to keep the momentum going. We look to you as the essential ingredient for the success of the actions that follow. Join us in achieving our Watershed Action Team's vision of "a river that nourishes and sustains a wide variety of economic and public uses, supports a healthy and diverse ecosystem, and is actively and responsibly managed by an educated citizenry and a partnership of river users."



"The Elizabeth River Project... should serve as a prototype for other communities trying to find answers to complex problems and to build a consensus around solutions."

The Honorable Norman Sisisky, US Congress

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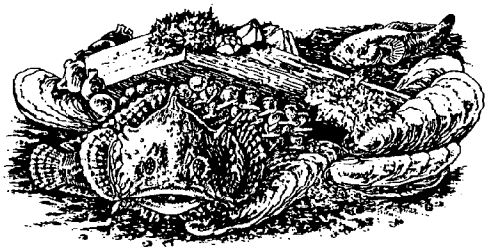
State of the River

"In many respects, the history of our nation is intertwined with the history of the Elizabeth River .... How economic development, which has had so much of a struggle throughout the centuries to come to any fruition, and how the necessary military structure can be maintained, and at the same time the river maintained, is a tremendous challenge. I commend you for undertaking that challenge."

- Former US Sen. William B. Spong Jr. of Portsmouth, Elizabeth River Project Visions conference Oct. 22, 1993

The Elizabeth River provides bountifully for Hampton Roads in economic terms. She sets a magnificent scene for attractions such as Norfolk's new National Maritime Center, Nauticus, and Harbor Park ballfield. Her channel waters bustle with the military fleets and foreign cargo vessels of an expanding port. She hosts thousands of recreational boaters on the Intercoastal Waterway and hundreds of thousands party on her shores during Harborfest.



At the same time, the Elizabeth River remains one of the more seriously degraded urban rivers in the United States. Originally a broad, shallow estuary of the Chesapeake Bay, the river has been dredged to twice her normal depth and filled to two-thirds her normal width to accommodate three centuries of development. Toxics accumulating in the river's muddy floor have been correlated with health problems in fish, including tumors, cataracts and other abnormalities, and pose risks for human health as well. Aquatic life has a hard time finding habitat, with as much as 50 percent of tidal wetlands lost on the Elizabeth River since World War II.

Some of the river's problems have abated with the environmental consciousness of the last decades. Industrial discharges into the river are regulated and significantly cleaner. Municipal improvements include a state-of-the-art sewage treatment plant. Large challenges remain for the 300-square-mile watershed, however.

The most serious risks currently facing the Elizabeth River were ranked in 1994 by diverse committees of the Elizabeth River Project. These "Comparative Risk Committees" agreed on four problems posing a high risk to human health, quality of life and the ecosystem in the Elizabeth River watershed:

1) sediment contamination,

2) loss of habitat and aquatic life,

3) "non-point source" pollution, primarily stormwater runoff; and

4) "point-source pollution," primarily discharges from industrial facilities.

In a 1995 technical assessment for this Action Plan, URS Consultants identified stormwater runoff as responsible for as much as 88 percent of heavy metals entering the river, and as much as 99 percent of another infamous river problem, polycyclic aromatic hydrocarbons (PAH's), carcinogens found in high levels in the Southern Branch of the river.

The Elizabeth River Project's Comparative Risk Committees identified an **overarching concern for human health risks.** The committees advised against near-shore swimming in the river, or working or wading in the mud of the Southern Branch, due to contaminants. Bacterial counts are too high for consumption of shellfish directly from the river. The risk of cancer from ingestion of PCB-contaminated fish is significant and has been calculated at 1 in 10,000, using limited data from the Southern Branch.

Our committees have consistently been concerned with **environmental justice** issues as well. On the Elizabeth River, these go hand in hand with human health concerns. Some population groups are more at risk than others from eating the river's fish or shellfish, the committees noted, including those engaged in recreational boating or subsistence fishing and pregnant women and nursing mothers.

"I know of no restorative of heart, body, and soul more effective against hopelessness than the restoration of the Earth."

Barry Lopez
McKenzie River, Oregon

History of the Plan

This Watershed Action Plan is the result of the Hampton Roads community taking responsibility for our own environmental challenges, with timely government help.

The non-profit Elizabeth River Project was hatched in 1991 by four local citizens around a kitchen table. Their premise: This river's large problems will not be solved by government alone, but by a new level of community stewardship. In 1994, with funding from the US EPA and the private VA Environmental Endowment, the Elizabeth River Project steered 80 volunteers from all walks of life through a seven-month process of analysis and debate leading to agreement on the river's worst problems.

Meanwhile, the tri-state Chesapeake Bay Program designated the Elizabeth River as one of three toxic "Regions of Concern" on the Bay. On Oct. 14, 1994, Virginia Gov. George F. Allen signed a commitment to lower toxics in these regions of concern.

The State turned to the Elizabeth River Project for stakeholder recommendations. In March 1995, the Elizabeth River Project entered a partnership agreement with Secretary of Natural Resources Becky Norton Dunlop. State funding was provided for the Project to develop recommendations on toxics reduction as an integrated part of a larger Watershed Action Plan. The comprehensive plan represents "Phase Two, Risk Management" of the Elizabeth River Project's EPA-sponsored planning process. Actions address not only toxics, but also the "high risk" problems of sediment contamination, habitat loss, point-source and non-point source pollution.

A 120-member Watershed Action Team kicked off on April 27, 1995. Over the following year, the team worked in four task forces: a Habitat & Living Resources Task Force, a Sediment Quality Task Force, a Water Quality Task Force and a Toxics Reduction Team. Members represented the spectrum of business, government, citizen and scientific concerns. These volunteers developed hundreds of pages of discussion papers before achieving consensus Feb. 29/March 1, 1996. Consultants also provided background reports.

Actions were chosen based on three criteria: **effectiveness, affordability** and **acceptability** to the community. Each action recommended was judged to be effective in reducing high-risk problems of the watershed. For each, it was thought reasonable that funding could be found and benefits appeared to outweigh costs. Each was considered acceptable enough to reach implementation, although acceptability was hardest to gauge. The Elizabeth River Project mailed 1,000 questionnaires on acceptability in winter 1995 and established a Leadership Review Board to obtain input from the highest levels of authority, influence and knowledge on river issues. The Leadership Board endorsed the plan at a seminar on April 26, 1996.

"I congratulate each of you for your community spirit, and have confidence that your energy and concern for the Elizabeth River will produce tangible results of which we can all be proud."

- The Honorable Becky Norton Dunlop, Secretary of Natural Resources, Watershed Action Team kick-off, April 27, 1995

Critical Areas

The Action Team identified the following as "critical areas" deserving the most resources at this time:

Action 1 - Reduce sediment contamination;

Action 2 - Increase vegetated buffers, wetlands acreage and forested areas;

Action 5 - Establish pollution prevention and/or sustainable landscaping practices;

Action 6 - Reduce pollution from stormwater runoff;

Action 14 - Establish an Elizabeth River monitoring program and data bank.

The team recognizes these as key actions for the health of the river, although the team also expressed concern that too much emphasis on a few priorities could weaken its integrated watershed approach. "Restoration is different from habitat creation, reclamation and rehabilitation -- it is a holistic process not achieved through the isolated manipulation of individual elements," according to the National Research Council (1992).

The Team strongly recommends that implementation move forward with all 18 actions. All 18 met the test of the team's criteria: affordable, acceptable and effective.

"Astounding, miraculous!"
" Excellent. Model for the nation."
"My grandchildren (yet-to-be) will be grateful."

- Comments of the Watershed Action Team, Concluding Retreat, Feb. 29/Mar. 1, 1996

ACTION AGENDA

Section I - Addressing past harms

Meeting our obligations

Goal: *To restore the health, aesthetics and diverse ecosystems of the Elizabeth River.*

Action 1

Reduce sediment contamination in the Elizabeth River to levels non-toxic to humans and aquatic life, remediating the highest priority contaminated sites by 2010.

Pollutants accumulating over centuries in the river bottom have been linked to tumors, cataracts and deformities in fish and pose risks for human health as well.

1996-2010: Establish a relationship between the Elizabeth River Project, the Army Corps of Engineers Elizabeth River Basin Study and the EPA Superfund Plan for the Atlantic Wood site to: a) Identify areas where sediments are the most contaminated and select best alternatives to remediate them, using EPA guidelines. b) Conduct a demonstration remediation at a highly contaminated site. c) Remediate the highest priority contaminated sites by 2010. Pursue in conjunction with addressing upland sources of contamination. ***Underway:*** Congressional authorization (funding pending) for Corps study of the river; US Rep. Norman Sisisky, sponsor. Testing of "in situ" bioremediation by the VA Center for Innovative Technology and the University of VA. ***1997:*** Demonstrate remediation of sediments in a small waterway as part of a larger demonstration project. ***1998:*** State should establish Sediment Quality Guidelines to provide consistent guidance on levels at which sediments are considered contaminated.

Remediation costs vary. Dredging alone: $6 to $8 per cubic yard if a confined disposal facility is available (if not, costs escalate). Capping costs are comparable. On-shore bioremediation: $50 to $200 per cubic yard; requires dredging & on-shore facility.

Action 2

Increase vegetated buffers, wetlands acreage and forested areas.

"It is a wonderful plan."

RADM Robert Cole, Commander, Norfolk Naval Base, comments at Leadership Seminar April 26, 1996

The river has lost extensive vegetation -- as much as 50 percent of tidal wetlands between 1944 and 1977. Wetlands and other "vegetated buffers" provide habitat, trap sediments and filter pollutants.

1997 - 2010: Pursue wetlands restoration and conservation. To maximize effectiveness, affordability and acceptability: Concentrate on areas where losses have been the greatest; restore historical wetlands where possible. Focus on publicly held land where possible, reserving purchase of private sites and easements to critical areas. Focus on marginally developable real estate.

Underway: Implement the Elizabeth River Project's Wetlands Restoration Demonstration Project in Larchmont ($51,000 approved by EPA and VA license plate fund). Identify sites for the Vegetated Buffer Demonstration Project of VA Tech and VA Coastal Resources Management. Consider training volunteers for this program. ***1998:*** Complete a restoration priorities report. Develop percentage-based measurable objectives. Meet these objectives through local planning, enhanced stewardship and critical land and easement acquisition. Increase public awareness of the benefits of forested areas and increase public participation in tree planting. Establish five tree steward chapters per year with the Urban Forestry Council. ***2000:*** Develop contiguous "corridors" of habitat and large wetland areas through a "river corridor" program.

Costs: Average for creating 1 acre of salt marsh: $18,000; varies widely.

Action 3

Implement habitat enhancement programs at 25 percent of business and government facilities in the watershed by the year 2005, and enhance backyard habitats.

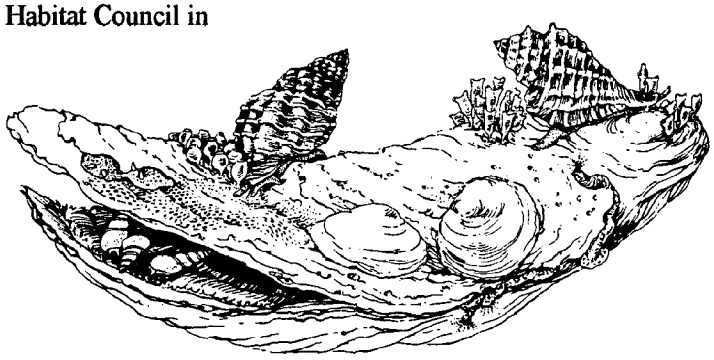
" I love the beautiful water, the fact that it's right next to the city, and the aquatic life."

Karen Amandolia, Glenwood Elementary
What I like best about the Elizabeth River,
Earth Day, 1995

All areas of the river's aquatic ecosystem show evidence of stress, from life in the river bottom to birds and mammals. Loss of habitat is a major stressor.

Underway: Encourage business and government facilities to enhance habitat on unused, marginally developable property by developing a "how to" resource service and "green award" program. The Elizabeth River Project is developing this service, exploring the model of the Wildlife Habitat Council in Silver Spring, MD. Goals are to identify and contact potential businesses; conduct seminars and develop habitat through low-cost steps such as planting small plots of seed crops or building bird houses for targeted species. Similar programs have resulted in enthusiastic employee participation and positive public recognition. Program will also advise on backyard habitat.

Costs: Cost to the Elizabeth River Project of developing the service is about $25,000 per year. Costs to businesses for implementing habitat are minimal, with donated materials often available.



Action 4

Minimize erosion along rapidly eroding shorelines by 2010, also rehabilitating existing hardened shorelines to use naturalized erosion measures wherever practical.

The loss of fringe marshes and other development impacts have contributed to high erosion. Results include a loss of valuable uplands as well as ecological damage.

By 1998: Promote the use of natural shorelines to control erosion. Construct demonstration projects promoting the economic and ecological benefits of natural shorelines. Pursue new technologies. Endorse reinstatement of funding to VA Dept. of Conservation and Recreation's Shoreline Erosion and Advisory Service to offer no-cost advice and site inspections to property owners. Identify degraded marsh habitats and erosion prone reaches and develop options to minimize erosion. Explore measures to reduce erosion caused by boat wakes. Explore the need for more no-wake zones and for enhanced compliance with existing restrictions.

By 2000: Develop and institute a successful incentive program for managing erosion-prone shorelines. Explore combinations of grants, cost-sharing and preferential tax, loan and insurance policies closely tied to existing regulatory and advisory programs. Consider legislation authorizing local governments to design, construct and maintain shoreline defense structures on a shoreline reach basis, through creation of erosion abatement districts with limited bonding power.

By 2010: Achieve a goal of the total linear feet of more desirable sloped and grassed shorelines exceeding the linear feet of vertical shorelines.

Costs: Average for creating 1 acre of salt marsh: $18,000; varies widely.

Section II - Keeping new pollution out of the river

Being good stewards

Goal: *To inspire individual and corporate responsibility and stewardship.*

Action 5

Establish pollution prevention and/or sustainable landscaping practices among 25 percent of residential, commercial and government land users in the watershed by the year 2005.

Pollution prevention practices are intended to halt pollution at the source, rather than cleaning up after-the-fact. This approach is considered one of the most effective means available to reduce toxic releases into the environment. Pollution prevention offers a "win-win" path that often saves money, enhances safety and reduces liability.

Underway : 1) Develop an Elizabeth River Project resource service and recognition program to increase pollution prevention practices among watershed industrial and commercial facilities. Adapt from existing prototypes and seek assistance from the VA DEQ Office of Pollution Prevention, the Hampton Roads Sanitation District and locality stormwater management divisions. Develop a resource pool of local expertise. Establish a clearinghouse for specific pollution prevention techniques categorized by land uses. Provide Internet access through Elizabeth River Project existing Home Page - www..infi.net/~erp.

2) Conduct a campaign to contact potential beneficiaries, starting with those most likely to benefit. Assist interested parties with identifying techniques applicable to their land use and with planning implementation strategies. Examples of businesses that may benefit include gas stations and motor vehicle maintenance facilities.

3) Present an "award" to participating parties and provide public recognition.

Underway: Develop a resource service and "green award" program targeted to assisting watershed residents with adopting sustainable landscaping and pollution prevention practices. Also promote increased toxics disposal opportunities for residents. The Elizabeth River Project will pursue these efforts in cooperation with VA DEQ, US EPA, Hampton Roads Sanitation District, Alliance for the Chesapeake Bay and other relevant authorities, along with developers, garden shops, hardware stores, environmental consultants, landscapers, master gardeners and others willing to pool their expertise for mutual gain.

Promote the following practices throughout the watershed: *use of native and other "beneficial" plants; integrated pest management; water-wise landscaping, turf alternatives; rain gardens; vegetated buffers; and pervious surfaces.*

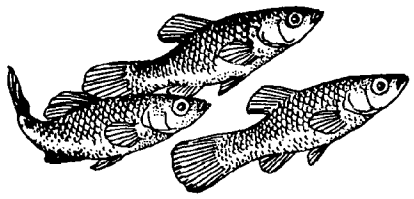
Underway: HB863/SB179 of the 1996 General Assembly allows localities to give tax incentives for improvements using pervious materials.

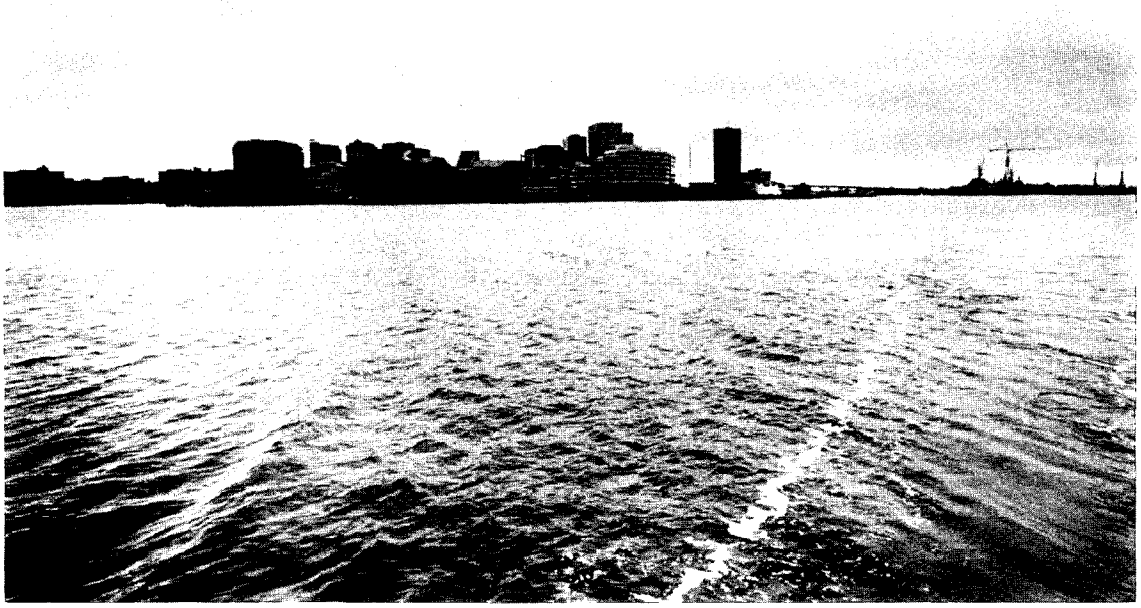
Select a neighborhood or neighborhoods for an awareness campaign promoting such practices and pursuing demonstration projects. Develop "environmental contracts" for waterfront landowners. Conduct "before," "during" and "after" surveys of awareness. Use results to promote such activities watershed-wide.

Cost of resource service: $80,000 annually. Costs to beneficiaries: varies widely.

"It shines in the sun."

Megan Burns, Lynnhaven Elementary, What I like best about the Elizabeth River, Earth Day, 1995





Bill Tiernan copyright 1996

Reduce pollution from stormwater runoff to the maximum practical extent.

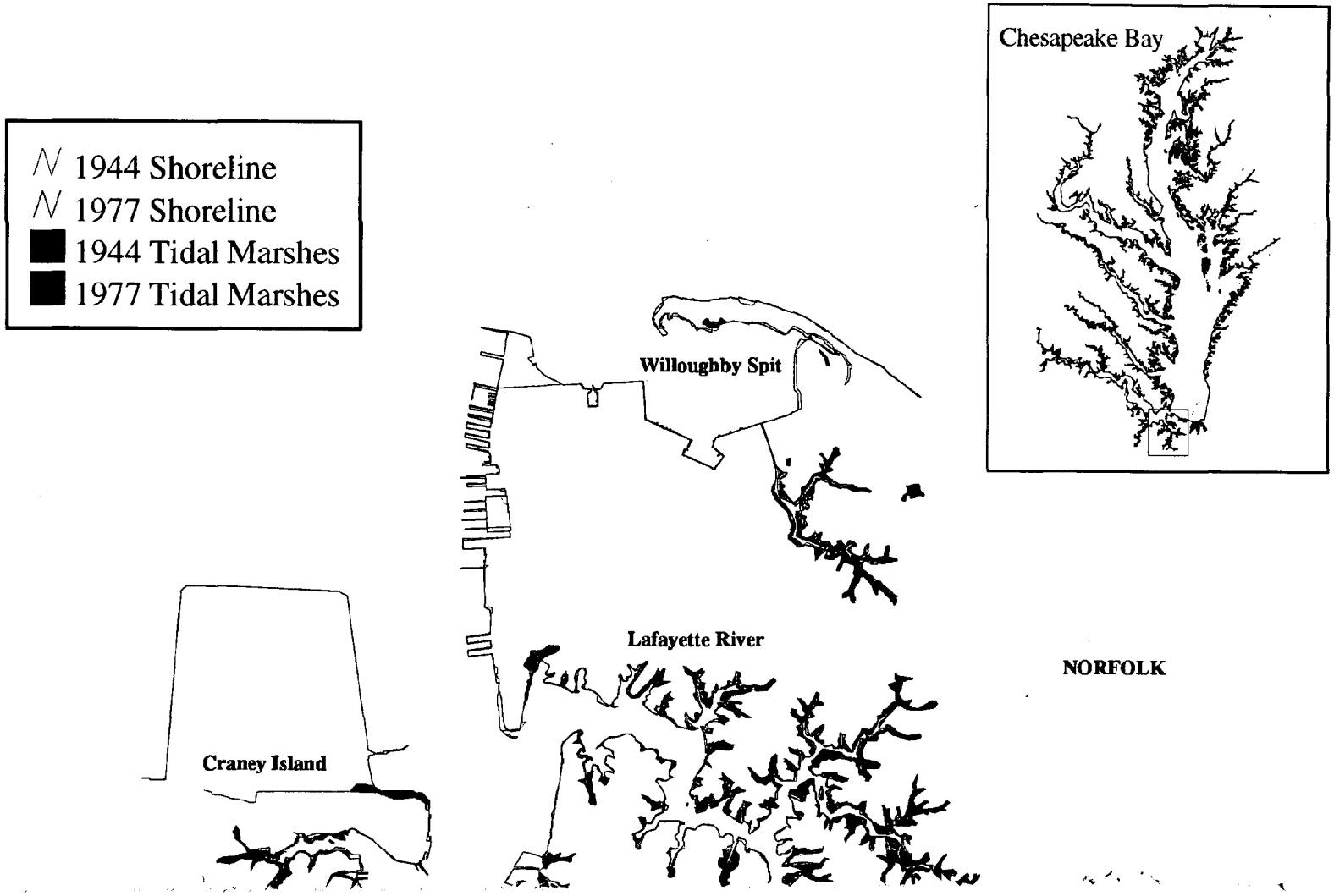
Action 6

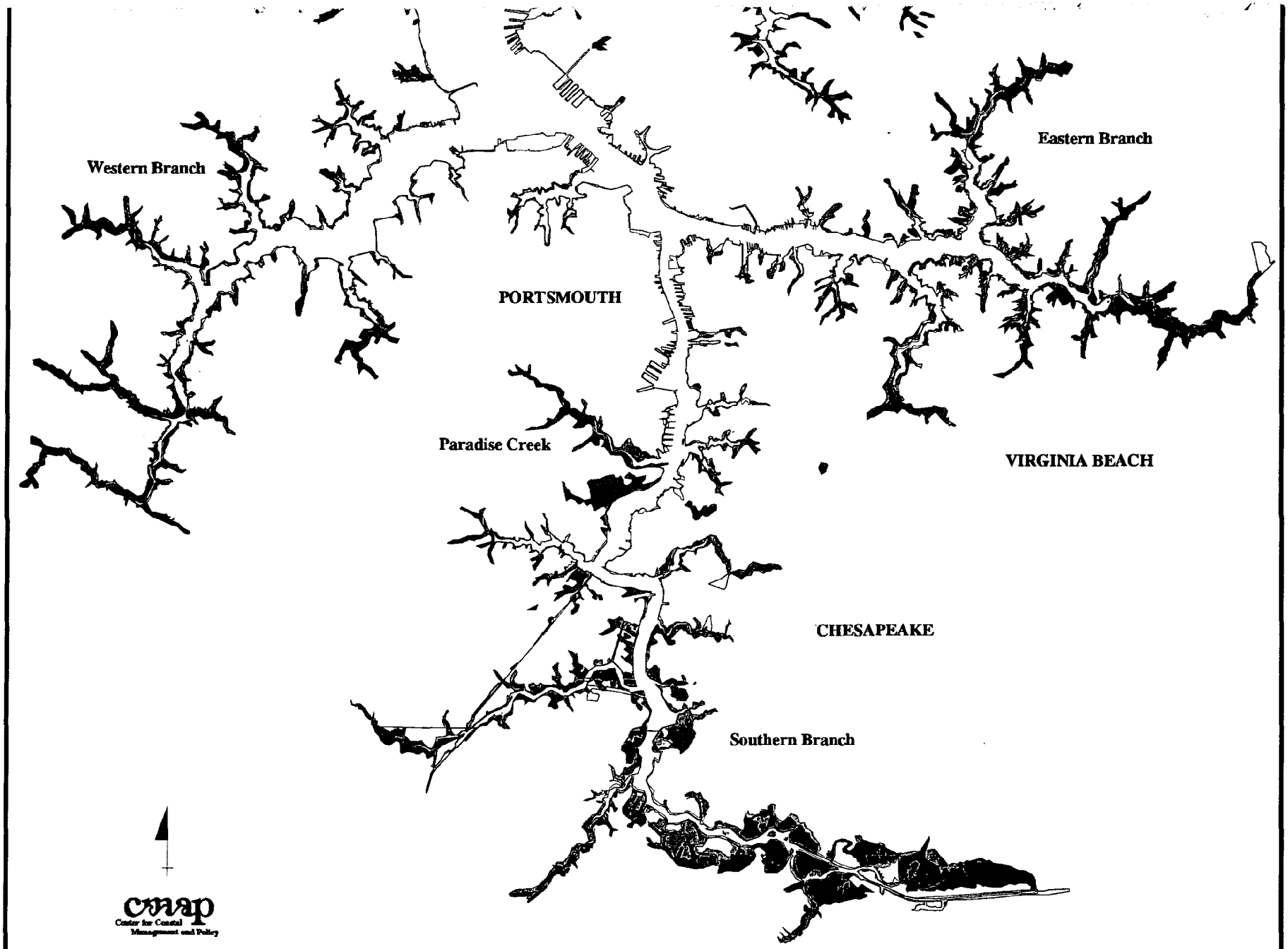
As much as 90 percent of new pollution entering the Elizabeth River today arrives in runoff from parking lots, lawns and other industrial and residential surfaces. An aging system of stormwater drains rushes a toxic soup of oils, fertilizers, pesticides and metals directly into the river.

1996-2000: Work with the Cities of Norfolk, Portsmouth, Chesapeake and Virginia Beach to provide the public support and the public-private resources necessary to: a) Increase public support for city stormwater pollution reduction programs and for the active use of city resources to implement pollution management. b) Achieve full, effective implementation of stormwater pollution controls already in place or proposed by the cities, recognizing that intended improvements are likely to remain only partially realized without greater public support. Promote full implementation of city permits for stormwater management. c) Promote uniform standards for implementation of Best Management Practices for new development and re-development. d) Promote regional land use planning and practices to reduce impervious surfaces, such as bike and walking paths to activity centers, zoning to allow centralized communities, shared parking for compatible businesses, cluster developments and alternative surfaces including pervious paving systems. e) Promote regional adoption of innovative, cost-effective stormwater pollution control techniques to retrofit outmoded stormwater systems in developed areas. f) As public support increases, work with Cities to consider ambitious measurable objectives for replacing significant amounts of outmoded city stormwater systems. Pursue opportunities to assist by researching promising retrofit techniques for the Elizabeth and pursuing demonstration projects. Explore public-private funding. Promote a voluntary program offering incentives to facilities capturing and treating their first flush of stormwater.

Costs: Ulta-urban BMPs, $20,000 for Stormceptor units to $50,000 for a sand filter structure. Other costs vary.

Shoreline and Tidal Marsh Changes
Elizabeth River Watershed 1944 –1977





Source: USGS Topographic Map, 1944, 1977.

Action 7

Identify and correct inadequate sanitary collection systems, for the purpose of reducing human health risks and ecological risks from bacterial contamination in the Elizabeth River.

Unsanitary conditions related to human and animal sewage contribute to the condemnation of shellfish beds in the Elizabeth River. Such conditions pose risks to human health.

1996-2000: 1) Include boaters and marinas in a diverse task force, possibly sponsored by the VA Dept. of Health, to develop an effective program for increasing the use of sewage pump-out facilities by recreational boaters. Hampton Roads has nearly 25,000 registered recreational boats; use of pump-outs appears limited. Examine other successful programs including "Pump Don't Dump" program of the State of Maryland and a shore-based, no-charge pump-out program piloted on the Lynnhaven River in 1994. Develop education and incentive components and funding sources.

2) Identify and address other sewage discharge problems.

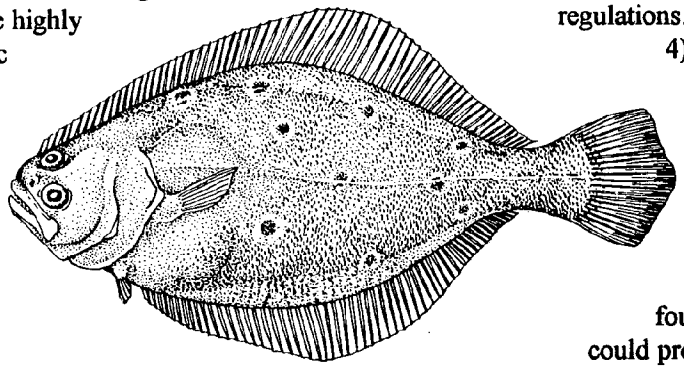
3) Build public support for the municipalities in their development of strategies and incentives for home and business owners to repair leaks in "lateral"sewage lines running from a house or business to a curb. These lines are generally the responsibility of the property owner and pose a missing link in efforts to maintain adequate human sewage collection.

Costs: A portable pump-out program for recreational boaters on the Lynnhaven cost about $45,000. Repair of lateral sewage lines averages about $100 per linear foot.

Action 8

Reduce TBT to non-toxic levels in the Elizabeth River waters and sediment, while enhancing the opportunity for continued competiveness of Virginia's shipping, shipbuilding and other related businesses.

Tributyltin (TBT) is a pesticide used in antifoulant paints to protect boat hulls from barnacles and algae. TBT compounds are highly toxic to aquatic life and are capable of causing adverse biological effects at extremely low levels.



1996:

1) Initiate aggressive action seeking the establishment of a national ban on the use of TBT paints on all watergoing vessels.

2) Support the establishment of an international ban on the use of TBT paints on all vessels.

3) Maintain Virginia's progress toward reducing the sources of TBT contamination by continuing current TBT regulations.

4) Continue to conduct study of the nature of the TBT problem at the local level if funding for such studies is found. Further study could provide better understanding of the actual levels of release from shipyards and newly painted hulls and subsequent impacts on water quality.

Costs: Cost of monitoring the effect of a single ship-painting event could be $70,000 to $100,000.

Promote mass transit and alternate transportation, based on a recognition of automotive usage as a major source of pollution in the Elizabeth River.

Action 9

Cars and trucks are a major source of pollution in the Elizabeth River through air emissions and through metals and oils washed off the roads with the rain.

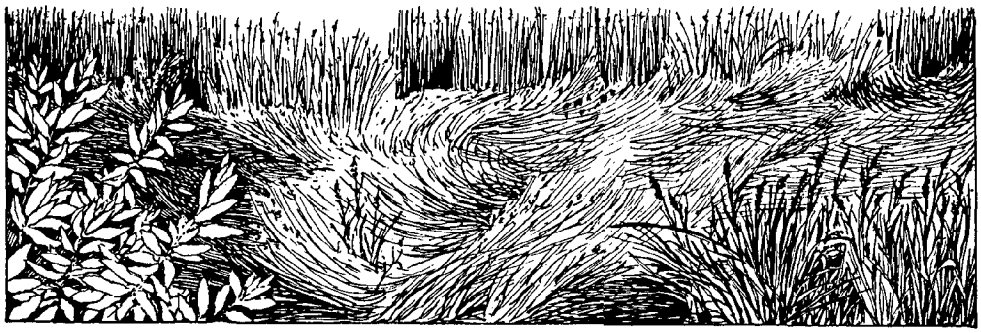
1996: Form a mass transit and alternate transportation team of the Elizabeth River Project to:

a) Identify ways to increase support for and effectiveness of organizations already pursuing mass transit;

b) Alert Elizabeth River Project members and leadership of opportunities to provide support for specific initiatives;

c) Promote understanding of the link between cars and trucks and water quality, exploring the possibility of a speakers bureau to address this issue; and

d) Explore whether any direct initiatives, such as a biking path, are within the scope of the Elizabeth River Project.



Enhance compliance with existing regulations.

Action 10

Regulations exist which, effectively implemented, would significantly improve the Elizabeth River. Compliance is diminished by a lack of regulatory resources, a lack of public education and incentives and inconsistent or illogical implementation practices.

1996-2000: Support adequate staffing and other resources needed to implement existing regulations in a manner effective for reducing pollutants in the watershed. Relevant regulations include but are not limited to the Chesapeake Bay Preservation Act, Erosion and Sediment Control Regulations and VA Pollutant Discharge Regulations.

The Elizabeth River Project should explore interest among business, citizen and government concerns for a compliance study group to develop a comprehensive approach to enhancing regulatory compliance at the local level. Issues the panel might address: To what degree is the implementation of existing regulations producing the intended results? To what degree is compliance enhanced by the use of regulations that are understandable and consistently applied? What conflicts between regulations, if any, exist? Is there effective management of compliance records? What resource levels are needed? Are current education and incentive methods sufficient?

Costs: The estimated cost for this recommendation was based on each city adding one additional staff person and the Tidewater regional DEQ office adding two additional staff for enhancing compliance. The total cost is estimated at $250,000 to $300,000 per year.

" Excellent overall... Congratulations to all!"

Will Baker, President, Chesapeake Bay Foundation, comments on the First Draft of the Watershed Action Plan

Section III - Increasing use and enjoyment of the Elizabeth

Realizing the full potential of the resource

Goal: *To raise appreciation of the river's economic, ecological and recreational values.*

Action 11

Enhance marketability of Hampton Roads through achieving a cleaner environment, working with localities and the Chamber of Commerce's Plan 2007.

"Hampton Roads is one of the most successful shipping ports in the world. It has been blessed with the greatest of natural resources in its port, and the maritime community has taken full advantage of this resource, constantly growing and diversifying..."

- Hampton Roads Maritime Assoc. Annual Report 1996

Pollution slows the economic vitality of a region, impacting marketing, recreation and quality of life.

1996-2000: The Elizabeth River Project should work with the State, Cities and private partners to explore federally funded opportunities for enhancing economic vitality by achieving a cleaner Elizabeth River.

Explore initiatives including: a) EPA Brownfields Economic Redevelopment Initiative, providing up to $200,000 for improving the economic viability of abandoned, idled or underused sites by cleaning them up. b) EPA Project XL Communities, providing flexibility for communities to implement community-designed and directed strategies to achieve greater environmental quality. c) EPA Sustainable Development Challenge Grants, providing funding for projects that leverage private investment in environmental efforts and those that link environmental protection with sustainable development and revitalization.

Also encourage local tourism bureaus, economic development departments and the Chamber of Commerce to become partners in river cleanup efforts out of recognition for the value that clean rivers play in a community's marketability to tourists and businesses concerned about quality of life.

Cost: Matching local and/or private funding may be required for federal programs. Cost-benefit should be high.

Action 12

Increase public access to the Elizabeth River for the purpose of increasing appreciation of the river and support for restoration.

A lack of positive river experiences contributes to a lack of concern for the Elizabeth River. Increasing recreational access is one way to increase appreciation of the river.

Underway: Initiate boat trips to expose children to the beauty, history, recreational, economic and ecological values of the river. Working with the Elizabeth River Project, the passenger schooner American Rover begins Elizabeth River education for students in Spring 1996.

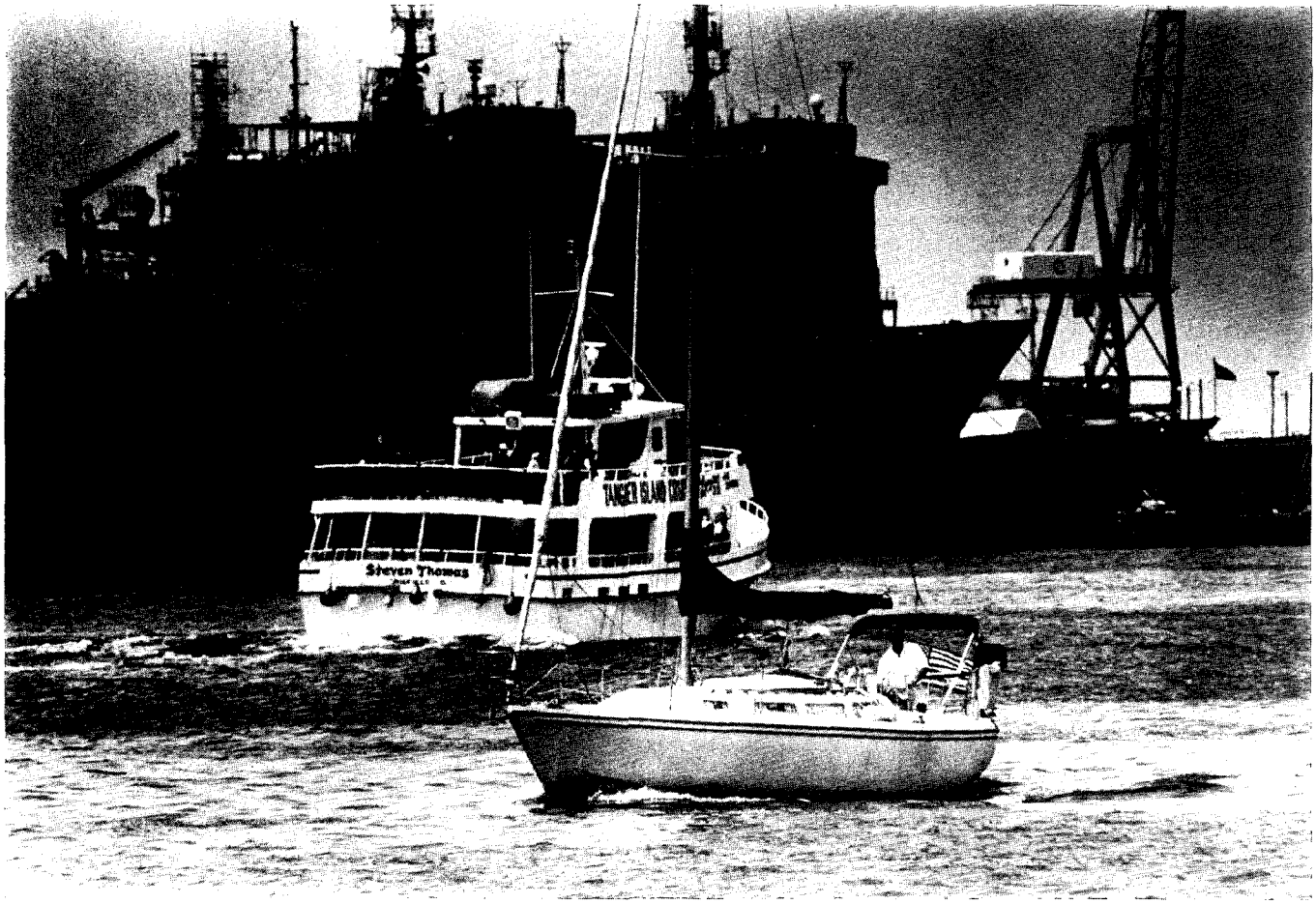
1996-1997: Elizabeth River Project should obtain a small grant to identify and publicize existing access sites, providing a map and lists of facilities available. Use volunteers to contact government officials. Have results printed and distributed throughout the area, modeling the effort after the Chesapeake Bay Program's Bay Area Access Plan (1990). Support the expansion of existing public access opportunities, particularly those such as Virginia Beach's Elizabeth River Nature and Canoe Trail that at the same time preserve habitat. Develop additional access to the river on sites identified by previous studies including the Bay Program Public Access Plans.

Remove abandoned vessels and pilings, where possible also conserving or replacing habitat.

Action 13

Abandoned vessels are unsightly, contribute to negative attitudes about the river, can leak pollution and may be navigation hazards. The Western Branch alone has at least 44 abandoned vessels and almost 500 abandoned pilings.

Underway: The 1996 General Assembly adopted a state budget amendment allocating $100,000 a year for 1996 and 1997 to the VA Marine Resources Commission for removal of abandoned vessels and other deteriorated structures in the Elizabeth River. The Marine Resources Commission has already mapped the location of derelict pilings, piers and vessels in the river. These objects leach oil and other hazardous substances. At times, however, abandoned vessels do provide scarce habitat. Efforts should be made to replace any habitat lost. Special thanks to the Hon. Stanley C. Walker, VA Senate, early patron of the budget amendment.



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Section IV - Increasing our knowledge of the Elizabeth River

Making more informed decisions

Goal: *Develop a state-of-the-art Watershed Action Plan that is effective... affordable... and acceptable.*

Action 14

Establish and maintain an Elizabeth River **monitoring program and data bank** to provide the scientific foundation for protecting, restoring and sustaining living resources and human health in the Elizabeth River watershed.

Monitoring provides the only sound basis for guiding effective management of the river, including implementation of actions in this plan. Without a consistent way to measure river conditions over time, it is unknown whether management efforts are appropriate and we may be unable to tell if our proposed actions make any difference.

Underway: At the request of the Elizabeth River Project, the 1996 General Assembly adopted a state budget amendment providing $250,000 over two years to enhance toxics monitoring capabilities of the VA Department of Environmental Quality. Speaker Thomas Moss of the House and State Sen. Stanley C. Walker were early patrons of the bill. The budget amendment was requested to enhance toxics monitoring capabilities of DEQ as one part of a comprehensive monitoring and data collection program, also pooling other local and private resources. During the first year, scientific, citizen, business, academic and government interests should be brought together for facilitated discussions of: a) achieving an effective monitoring program; b) resources to be pooled from the public and private sector. A centralized data bank should be established and improved DEQ monitoring begun.

1997: In the second year, the monitoring program should provide data for an annual State of the River report to be presented to the public.

Action 15

Determine **the ecological effects of Craney Island** operations on the Elizabeth River, with the purpose of reaching consensus among interested parties about best management practices and remediation needs.

Craney Island is a 2,500-acre confined site operated at the confluence of the Elizabeth and James Rivers for the disposal of dredged material. Questions have been raised about the possible escape of contamination from these materials, although no studies have identified any major pollution problems.

1997: Design a comprehensive, independent, technologically sound study to generate new data and provide the basis for recommending possible improvements. Stakeholders and beneficiaries should be involved in planning and financing the study. Review existing pertinent literature, rules, regulations and permits; design the study, obtain financial support, organize study team.

1998-99: Complete data collection and analysis, develop any recommendations for possible improvements, and prepare report for distribution to concerned parties.

Cost: Cannot be accurately estimated prior to completing the study design. Cost of preliminary work needed to design a study, including a review of existing literature, and a preliminary report would cost $15,000 to $20,000. Cost would be justified by factors including the significance of Craney Island as one of the world's largest confined dredged material placement areas and the need to educate the public about the ecological effects of Craney Island operations (positive or negative).

Develop and implement a "load allocation approach" as a voluntary tool for making more informed, more cost-effective decisions on how to manage the Elizabeth River.

Action 16

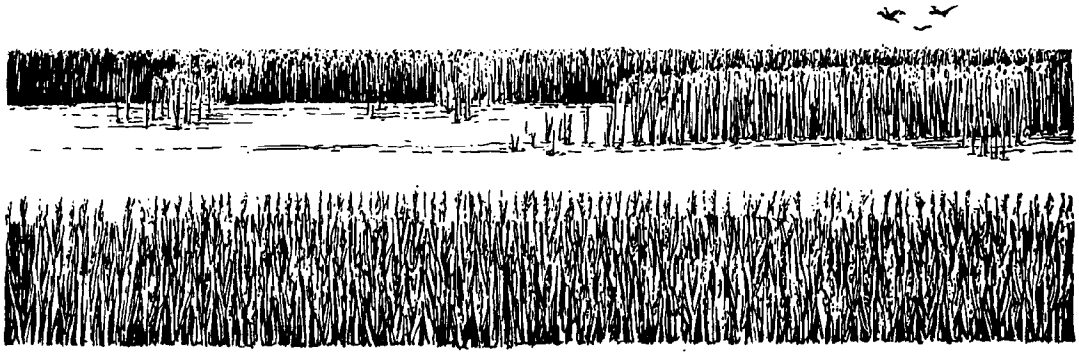
Load allocations improve the ability to understand and predict pollution impacts on the watershed, providing checks and balances to assure that resources are spent on the greatest environmental needs.

1996-2000 - 1) With VA DEQ as the lead agency, prepare a "load" inventory documenting all point and non-point source pollution input into the river. 2) Calculate the "load capacity" of the river, or the amount of pollutants the river can assimilate without adverse impacts to environmental quality. An essential step, modeling the river's flow, is near completion at Old Dominion University. 3) Prepare "load allocation reduction targets." Determine the amount of pollution which must be removed in order not to exceed the river's ability to assimilate the pollutant ("load capacity"). 4) Suggest "load" levels to be allocated among point and non-point sources consistent with target reductions. This step can create "pollutant trading opportunities" which can encourage more cost-effective environmental results ("the biggest bang for the buck"). 5) Suggest appropriate allocations and management strategies based on what we have learned. NOTE: This reduction action is not intended to be used in a regulatory context.

Costs: Funding is envisioned to be obtained from grants. Funding may also be obtained from stakeholders if they feel that the process will benefit them by reducing their costs for toxics reduction actions. Total costs could range as high as $2 million.

"The care of rivers is not a question of rivers, but of the human heart."

- Tanaka Shozo



Develop a nutrients task force to establish Elizabeth River nutrient goals and basis for goals, and to recommend control measures needed to achieve goals.

Action 17

Excess nutrients are well-recognized as a serious pollution problem of the Chesapeake Bay and its rivers. At the same time, high uncertainty exists regarding appropriate nutrient reduction goals and controls for the Elizabeth.

Underway - A nutrients task force has been formed, including liaison representation on the Hampton Roads Tributary Strategies work group of the Hampton Roads Planning District Commission. Establish nutrient goals and basis for goals. Evaluate existing data. Recommend further studies where existing data is insufficient to establish nutrient goals.

2000 - Develop a comprehensive water quality model for the river to evaluate nutrient flux, determine the dominant sources and explore the effectiveness of different control measures. Recommend those nutrient control measures needed to achieve goals. Follow through to assure that the recommended controls are implemented.

Cost of task force: Low unless additional technical research is needed beyond the work of the strategies project.

Section V - Creating an active partnership to manage & maintain a healthy river

Working together

Goal: *To forge partnerships between citizens, industry, scientists and government, while balancing competing uses.*

Action 18

Build strong partnerships between the Elizabeth River Project and all public and private authorities relevant to this plan, for the purposes of ensuring public input and support; achieving environmental equity, and promoting speedy, effective implementation and enhanced regional watershed planning.

1996 - Establish on-going leadership for the Action Plan at the highest levels of authority, and establish strong working-level relationships, in each of these areas:
a) businesses and their trade organizations;
b) residents and their civic groups; educational and scientific institutions; recreational organizations, environmental and environmental justice-related groups;
c) governments and agencies, including the Commonwealth of Virginia; the Cities of Norfolk, Portsmouth, Chesapeake and Virginia Beach; the Hampton Roads Planning District Commission, the Hampton Roads Sanitation District, EPA, US Congress, Army Corps of Engineers, Navy and Coast Guard.

Your Role in Implementation

We have believed from the start that our community should decide for itself the kind of river it wants. Volunteers from all walks of life have worked side by side for nearly three years to give us a plan representing the great breadth of interests in the Elizabeth River watershed. We believe they have prepared a rare gift for our community: an action plan that is meaningful and ambitious, yet practical and inclusive.

The Elizabeth River Project invites you to be a part of bringing this caring vision of a cleaner river to fruition. A number of actions are already underway, thanks to the credibility and can-do spirit of those involved to date. Other actions depend on you.

Let us know how you would like to help with the Elizabeth River Restoration.

"America is a great story, and there is a river on every page of it."

Charles Kuralt

Opportunities to Participate:
Implementation Team Action Committees *(pursuing each action)*
Public Involvement Committee *(building public support)*
Technical Review Committee *(making actions effective)*
Ways & Means Committee *(finding funding for actions)*
Charter Memberships - $25 Individual, $50 Supporting, $100 Sustaining; $175 Organizational

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Actions are the result of consensus decisions based on thousands of hours of research and debate by:

The Watershed Action Team

The Elizabeth River Project's Watershed Action Team envisions a river that:
~ **Nourishes and sustains** a wide variety of economic and public uses,
~ **Supports** a healthy and diverse ecosystem, and is
~ **Actively and responsibly managed** by an educated citizenry and a partnership of river users.

Vision statement, June 12, 1995

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