

Chesapeake Executive Council

Implementation Plan for
Removing Impediments
to Migratory Fishes in the
Chesapeake Bay Watershed

Chesapeake
Bay
Program

Implementation Plan
Annual Progress Report

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December 1989



Regional Center for Environmental Information
US EPA Region III
1650 Arch St.
Philadelphia, PA 19103

Implementation Plan for Removing Impediments to Migratory Fishes in the Chesapeake Bay Watershed

A Commitment Implementation Plan from
the Chesapeake Executive Council

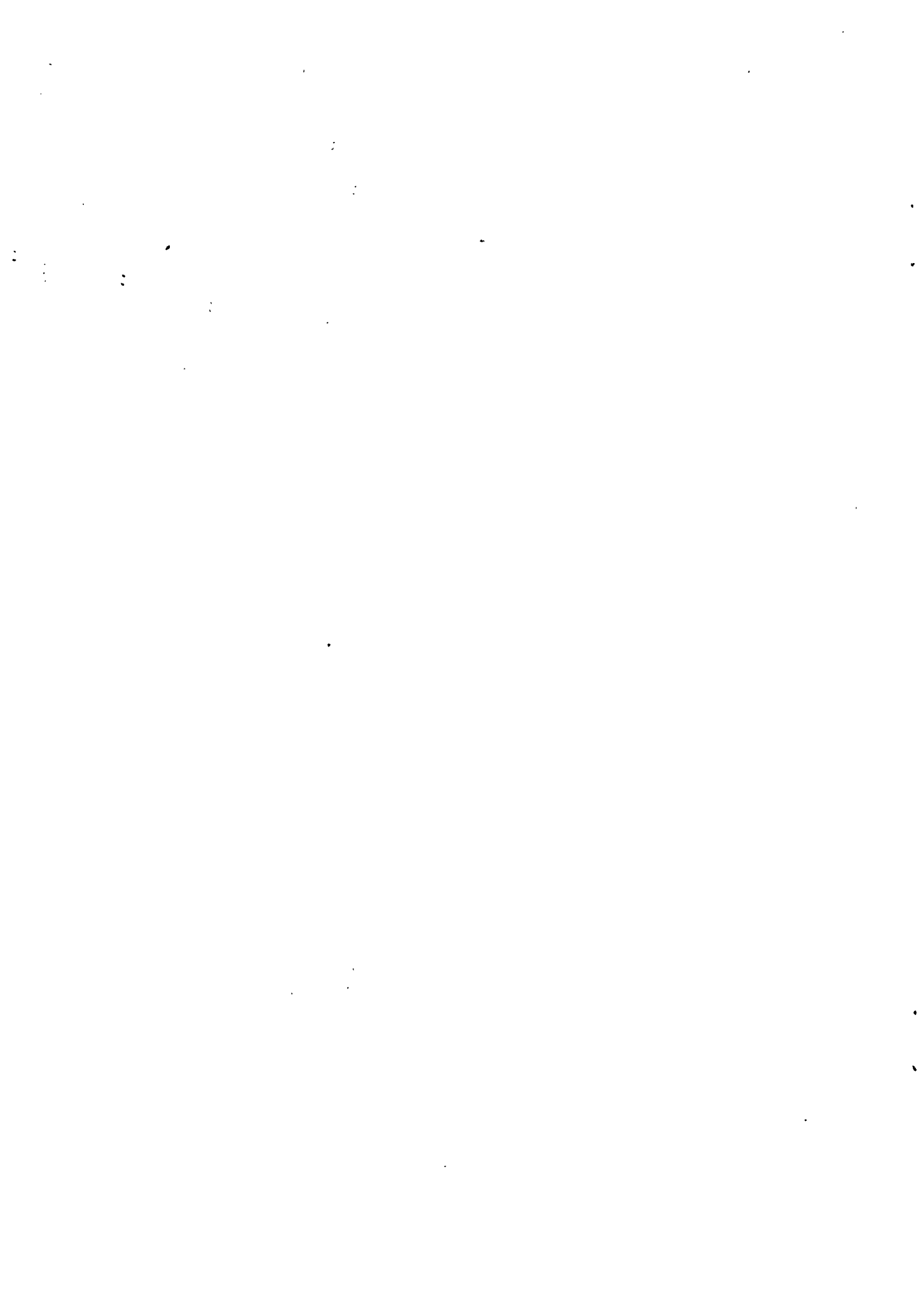
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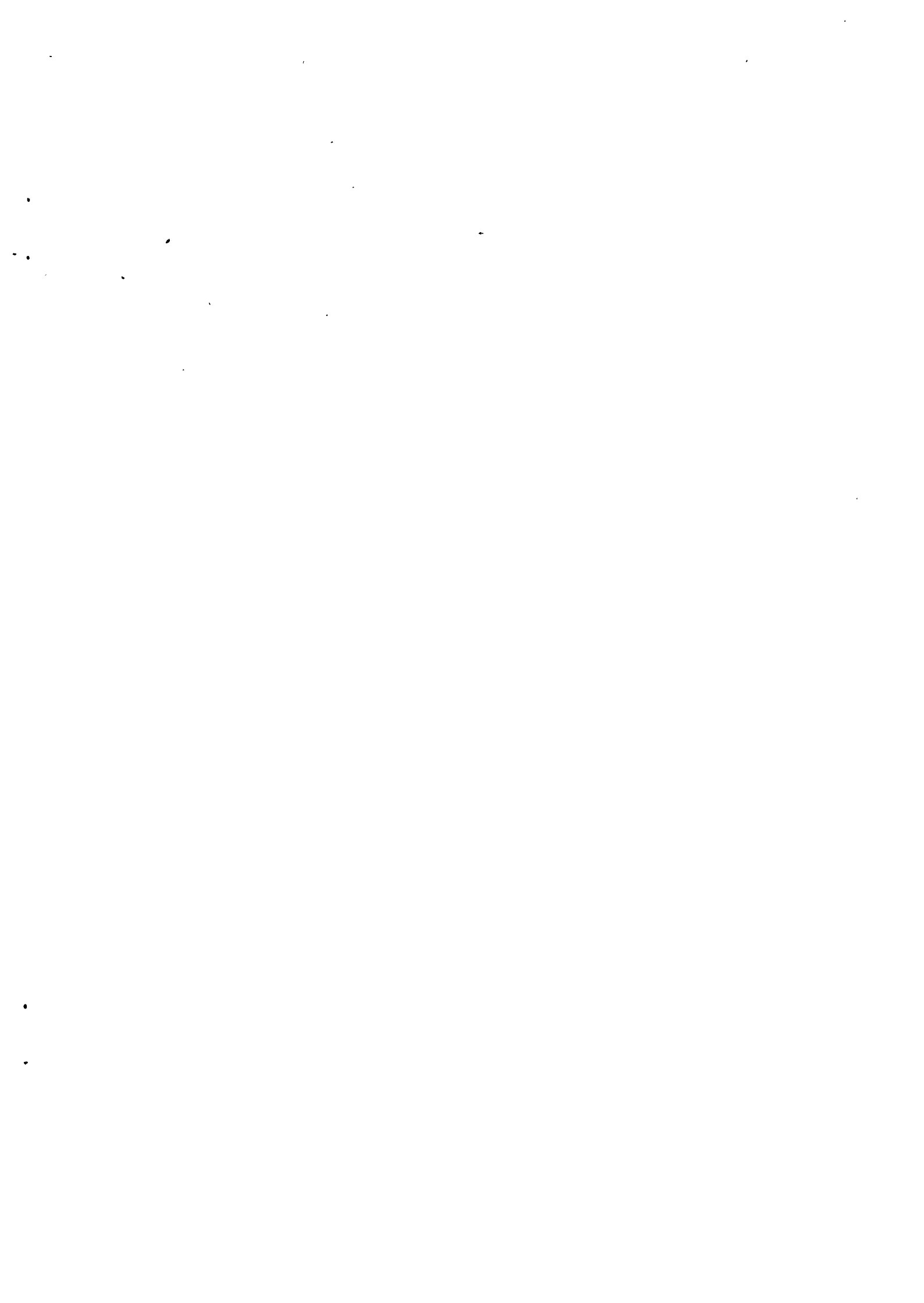
Annapolis, Maryland
December, 1989

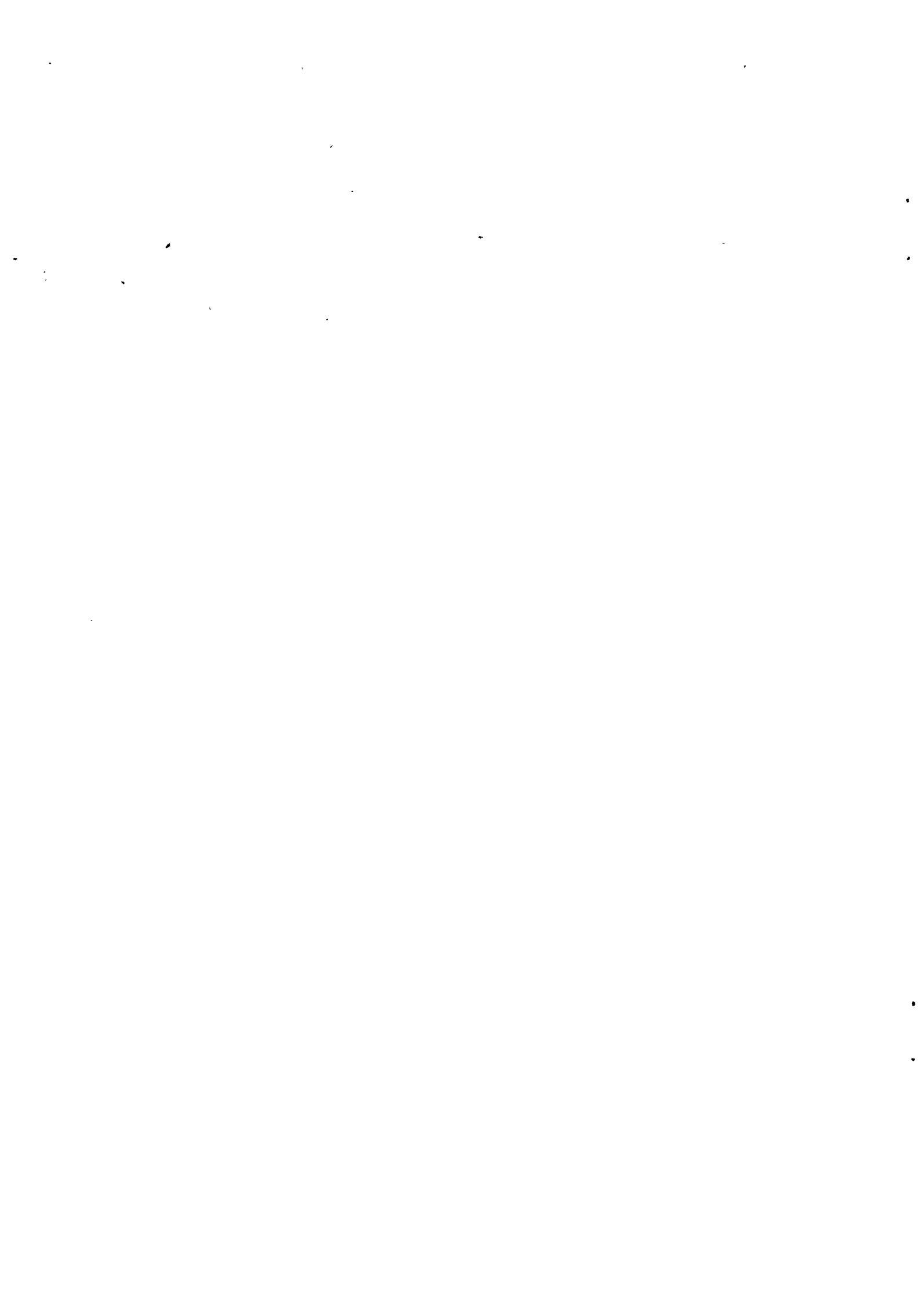
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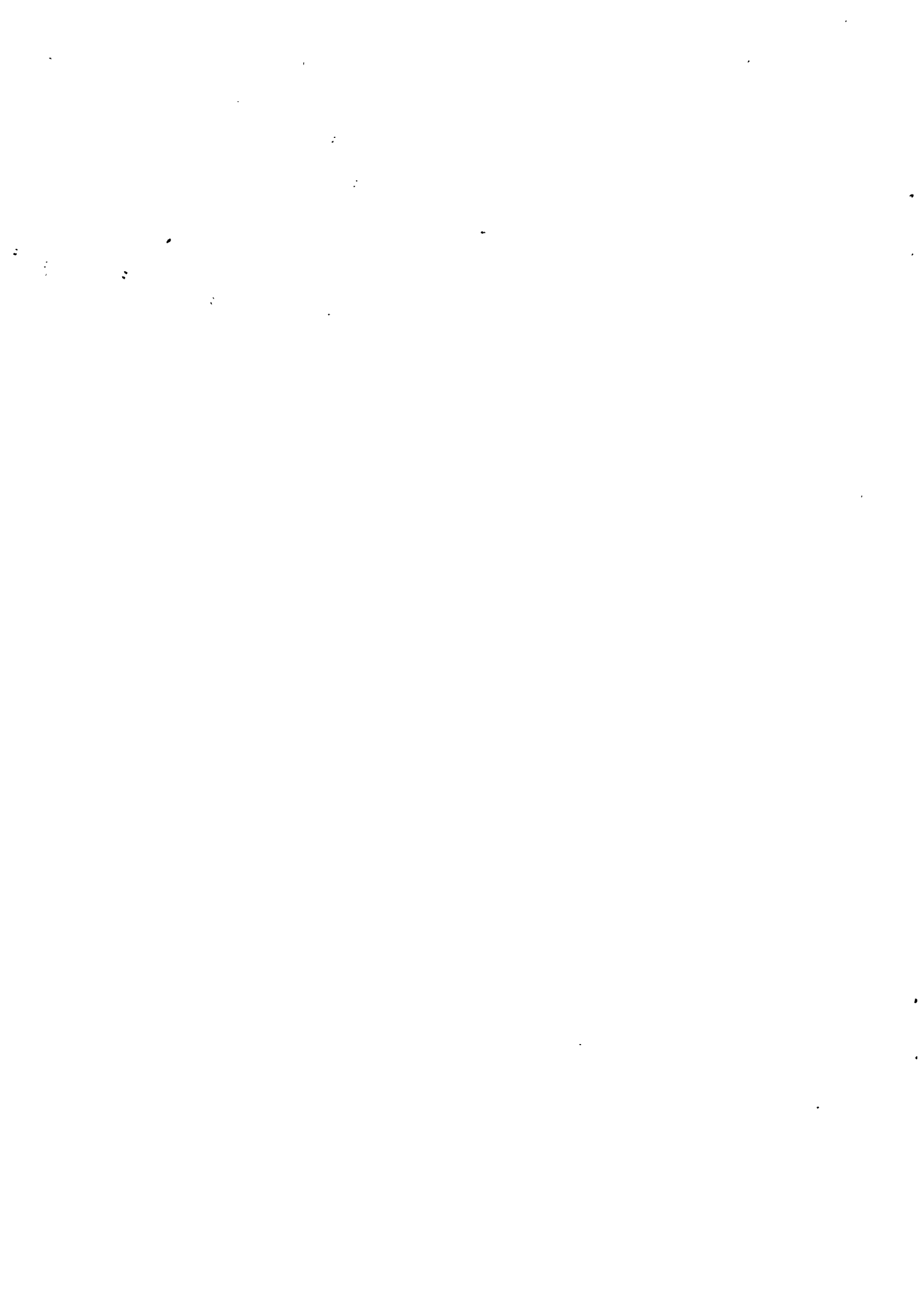




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**Section I
Implementation Plan**



Introduction

As part of its effort to implement the "Strategy for Removing Impediments to Migratory Fishes in the Chesapeake Bay Watershed," the Fish Passage Workgroup of the Living Resources Subcommittee has developed the attached Implementation Plan

The Plan is presented in tabular form based on the Strategy Recommendations. It identifies the necessary implementing actions, responsible agencies, and the schedule for completing the listed actions, responsible agencies, and the schedule for completing the listed actions. The Plan also includes an estimate of resources needed through the 1992 Budget Year.

Section II of the document contains Progress Reports for the respective jurisdictions indicating the activities undertaken in 1989.

Baywide
Implementation Plan
For Removing Impediments to Migratory Fishes
In the Chesapeake Bay Watershed

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|---|-------------------------------|
| <p>Establish an Ongoing Baywide Fish Passage Workgroup</p> <p>*Coordinate Baywide Fish Passage Efforts</p> | <p>Baywide workgroup established and continuing to coordinate fish passage efforts</p> | <p>State PA-PFC MD-MDNRF VA-VDGIF, VCOE DC-DCF Federal USFWS NMFS</p> | <p>Completed</p> |
| <p>Updating a Comprehensive Inventory of Obstructions</p> <p>*Inventory Dams and Other Obstructions</p> | <p>•Complete inventory •Update as required</p> | <p>State PA-PFC MD-MDNRF VA-VDGIF</p> | <p>1990 Ongoing</p> |
| <p>*Reassess Priorities</p> | <p>•Consider blockages as part of planning studies and integrate fish passage objectives Reassessment based on existing inventory and in conjunction with other agencies</p> | <p>State PA-PFC, PDOT MD-MDNRF, MSHA VA-VDGIF, VDOT Federal CORPS DOT-FHA</p> | <p>Ongoing Biennially</p> |

Baywide Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|--|--|-------------------------|
| <p>Establishing a Multi-Faceted Approach to Migratory Fish Impediments</p> <p>Culverts and Highway Impediments</p> | <ul style="list-style-type: none"> • Develop Ches. Bay-wide design manual • Construct all culverts utilizing latest technologies to assure passage | <p>Federal USFWS</p> <p>State PA-PDOT, PFC, Local MD-MSHA, MDNRF, Local VA-VDOT, VMRC, Local Federal CORPS DOT-FHA</p> | <p>1991</p> <p>1990</p> |
| <p>*Inventory Blockages and Prepare Remediation Strategy</p> | <ul style="list-style-type: none"> • Establish cooperative agreements between appropriate agencies | <p>State PA-PDOT, PFC, Local MD-MSHA, MDNRF, Local VA-VDOT, VDGIF, VCOE, VMRC, Local Federal CORPS DOT-FHA</p> | <p>1990</p> |
| <p>Small Dams</p> | <ul style="list-style-type: none"> • Complete site-specific remediation strategies | <p>State PA-PDOT, PFC, Local MD-MSHA, MDNRF, Local VA-VDOT, VDGIF, VMRC, Local Federal CORPS DOT-FHA</p> | <p>1991</p> |
| <p>*Rank Future Fishway Projects</p> | <p>Rank based on potential restorable habitat</p> | <p>State PA-PFC MD-MDNRF VA-VDGIF DC-DCF, NPS Federal USFWS NMFS</p> | <p>Biennially</p> |

Baywide Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|--|-------------------------|
| *Develop Technical Expertise | Provide staff training (e.g., Baywide technical workshop, Jan, 1990) | State PA-PFC MD-MDNR VA-VDGIF DC-DCF, NPS | Ongoing |
| *Involve Local Government | Work cooperatively on local projects (e.g., LGAC cooperative education project) | State PA-PFC, Local MD-MDNR, Local VA-VDGIF, VCOE, Local DC-DCF, NPS | 1990 |
| *Provide for Adequate Funding | Apply federal, state, local or private funds as appropriate | State PA-PFC, Local MD-MDNR, Local VA-VDGIF, VCOE, Local DC-DCF, NPS Federal USFWS NMFS | Annually |
| *Assure Adequate Legal Authority | <ul style="list-style-type: none"> Review existing laws Recommend changes as needed | State PA-PFC MD-MDNR, AG VA-VDGIF, AG DC-DCF, NPS | Completed |
| *Provide Resources for Fishway Operation/Maintenance | <ul style="list-style-type: none"> Responsibility of dam owner with resource agency oversight Provide oversight to dam owner to dam owner (fishway operation/ maintenance is owner's responsibility) | State PA-PFC MD-MDNR, AG VA-VDGIF, AG DC-DCF, NPS | Ongoing |

Baywide Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|---|-------------------------|
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Work cooperatively with utilities, and appropriate agencies to review FERC licenses and intervene where necessary | State PA-PFC, PDER MD-MDNR, MDNRPPR VA-VDGIF, VCOE Federal USFWS NMFS | Ongoing |
| *Provide recommendations to New FERC Licenses. | Review new licenses and prescribe fish passage facilities as necessary | State PA-PFC, PDER MD-MDNR, MDNRPPR VA-VDGIF, VCOE Federal USFWS NMFS | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | Rank sites based on existing inventory updated as necessary | State PA-PFC MD-MDNR VA-VDGIF DC-DCF Federal USFWS | 1990 ⁺ |
| *Develop Trap and Transport Or Hatchery Stocking Program | Utilize existing and new facilities/personnel as necessary in cooperation with other agencies | State PA-PFC MD-MDNR VA-VDGIF DC-DCF Federal USFWS | 1991 |
| *Acquire Trap and Transport Equipment | Acquire equipment as necessary | State PA-PFC MD-MDNR VA-VDGIF DC-DCF Federal USFWS | 1991 |

Baywide Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|--|--|
| *Identify Potential Sources of Fish for Trap/Transport | Identify viable spawning runs in coordination with BAFMP | State PA-PFC MD-MDNRF VA-VDGIF Federal USFWS | Ongoing |
| *Initiate Reintroduction Programs | Introduce fish where necessary in conjunction with passage projects | State PA-PFC MD-MDNRF VA-VDGIF Federal USFWS | Ongoing |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs To Protect New Populations | Apply protective regulations as necessary in cooperation with other agencies and the BAFMP | State PA-PFC MD-MDNRF, MDE VA-VDGIF, VMRC DC-DCF Federal USFWS NMFS | Ongoing |
| *Assure Adequate Water Quality in Targeted Steams | Work with appropriate agencies to: •Establish stream classifications to protect migratory fishes •Evaluate the adequacy of existing water quality and instream flow standards •Recommend modifications | State PA-PFC, PDER MD-MDNRF, MDE, MDNRWA VA-VDGIF, VMCB DC-DCF, VHB Federal USFWS NMFS | 1991 1991 1992 |
| Education | Participate in public education/information programs, including: •slide shows •displays •brochures •demonstration fishways •videos •TV, print media | State PA-PFC, PDER MD-MDNRF VA-VDGIF, VCOE DC-DCF Federal USFWS NMFS | Completed Completed Completed Under devel. Ongoing |

Baywide Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|---|-------------------------|
| Monitoring | | | |
| *Submit Annual Progress Report and Plan For Upcoming Year | Appropriate staff will submit report and plan to BFPW | State PA-PFC MD-MDNRF VA-VDGIF, VCOE DC-DCF Federal USFWS | Annually |
| Supplementing Technical Resources In The Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | Utilize existing FWS services and request further assistance as necessary | State PA-PFC MD-MDNRF VA-VDGIF, VCOE DC-DCF | Ongoing |
| *Sponsor Technical Workshop in Bay Region | Sponsor FWS workshop cooperatively with other agencies (scheduled for Jan 8-12, | State PA-PFC MD-MDNRF VA-VDGIF, VCOE Federal USFWS | 1990, |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | Develop university contacts and communicate needs | State PA-PFC MD-MDNRF VA-VDGIF, VCOE DC-DCF Federal USFWS | Ongoing |
| *Encourage FWS Cooperative Units in the Bay Watershed | Work with cooperative units on relevant projects | State PA-PFC MD-MDNRF VA-VDGIF DC-DCF Federal USFWS | Ongoing |

**PENNSYLVANIA
Implementation Plan**

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|----------------------|-------------------------|
| Establish an Ongoing Baywide Fish Passage Workgroup | Continue participation in BFPW | PFC | Ongoing |
| Update Comprehensive Inventory of Obstructions | *Inventory Dams and Other Obstructions *Reassess Priorities Annually | PFC PFC | Ongoing Annually |
| Establish a Multi-Faceted Approach to Migratory Fish Impediments | ∞ Culverts and Highway Impediments | PDOT PFC | Ongoing |
| *Design All Future Culverts to Assure Passage *Inventory Blockages and Prepare Remediation Strategy | Continue policy of placing culverts 6 to 12 inches below stream bed. Work cooperatively with State and Local highway agencies to remedy | PDOT PFC Local | Ongoing |
| Small Dams | *Rank Future Fishway Projects *Develop Technical Expertise | PFC PFC | Annually N/A |

PA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|----------------------|-------------------------|
| Small Dams (continued) | | | |
| *Involve Local Government | Require local government to provide passage when blockage is owned by such an agency. Will cooperate on design of necessary facilities. | PFC Local | Ongoing |
| *Provide for Adequate Funding | Require owners of small dams to fund fish passage facilities | Private | Ongoing |
| *Assure Adequate Legal Authority | Already provided in PFC Fish and Boat Code | PFC | N/A |
| *Provide Resources for Fishway Operation | Owner of dam and local sportmen as available | Local Private | Ongoing |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Work cooperatively with utilities, and work other appropriate state and federal agencies to review FERC licenses and intervene when necessary | PFC PDER | Ongoing |
| *Require Fish Passage in new FERC licenses | PFC requires private dam owners to fund fish passage: PDER will require developer to provide fish passage on State-owned dams or use Gen. Funds | PFC PDER | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | Rank sites based on existing inventory updated as necessary | PFC | Annually |

PA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Reintroduction (continued) | | | |
| *Initiate Reintroduction Programs | Move fish from inbasin sources when possible and out of basin sources when necessary until passage projects are operable and passing target species | PFC Private | Ongoing |
| *Develop Trap/Transport Or Hatchery Stocking Program | Work cooperatively with project owners and other governmental agencies as necessary | PFC Private | Ongoing |
| *Identify Potential Sources of Fish for Trap/Transport | Identify viable spawning runs for fish collection coordinate with BAFMP | PFC | Ongoing |
| *Acquire Trap/Transport Equipment | Use available equipment; obtain use of additional equipment already in use on Susquehanna | PFC | N/A |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs To Protect New Populations | Enforce regulations already in place; promulgate additional regulations as necessary in coordination with other agencies | PFC | Ongoing |
| *Assure Adequate Water Quality in Target Streams | Identify and reclassify streams when necessary: implement and enforce applicable water pollution control requirements | PFC PDER | Ongoing |
| Education | | | |
| *Develop a Plan For Public Involvement and Sponsorship of Activities Related to Fish Passage | Provide timely and appropriate news releases to media; provide slide presentations and displays; and, emphasize Adopt-A-Stream projects on waters having fish restoration programs. | PFC | Ongoing |
| Monitoring | | | |
| *Submit Annual Progress Report and Plan For Upcoming Year | Assign appropriate staff to prepare and submit report and plan to BFPW. | PFC | Annually in January |

PA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|----------------------|-------------------------|
| Supplementing Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | Continue to utilize FWS technical services and request further assistance as needed | PFC | Ongoing |
| *Sponsor Technical Workshop in Bay Region | Participate in technical workshop. | PFC | Ongoing |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | Provide support and make contacts as necessary | PFC | Ongoing |
| *Encourage FWS Cooperative Units in the Bay Watershed | Support PSU Cooperative Unit (currently) | PFC | Ongoing |

**MARYLAND
Implementation Plan**

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|--|----------------------|-------------------------|
| <p>Establish an Ongoing Baywide Fish Passage Workgroup</p> | <p>Participate in BFPW</p> | <p>MDNRF</p> | <p>Ongoing</p> |
| <p>Updating a Comprehensive Inventory of Obstructions</p> | <p>Update existing inventory as required</p> | <p>MDNRF</p> | <p>Ongoing</p> |
| <p>*Inventory Dams and Other Obstructions</p> | <p>Reassess annually based on existing inventory and in conjunction with SFPW</p> | <p>MDNRF</p> | <p>Annually</p> |
| <p>Establishing a Multi-Faceted Approach to Migratory Fish Impediments</p> | <p>Culverts and Highway Impediments</p> | <p>MSHA</p> | <p>Ongoing</p> |
| <p>*Design All Future Culverts to Assure Passage</p> | <p>Continue policy of placing culverts one foot below stream bed; monitor effectiveness</p> | <p>MSHA</p> | <p>Ongoing</p> |
| <p>*Inventory Blockages and Prepare Remediation Strategy</p> | <p>Work cooperatively with state and county highway agencies to mitigate structures for fish passage</p> | <p>MDNRF</p> | <p>Ongoing</p> |
| <p>Small Dams</p> | <p>Perform annually based on potential restorable habitat</p> | <p>MDNRF</p> | <p>Annually</p> |
| <p>*Rank Future Fishway Projects</p> | <p>Contract final engineering design services for fish passage and provide on-job experience</p> | <p>MDNRF</p> | <p>Ongoing</p> |

MD Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Small Dams (continued) | | | |
| *Involve Local Government | Construct demonstration fish passage facility as a cooperative effort; involve local government whenever practicable | MDNF, CBF | 1989 Ongoing |
| *Provide for Adequate Funding | Request funds in annual State budgets for priority projects; solicit private, federal, and corporate funds where available | MDNRF | Annually |
| *Assure Adequate Legal Authority | Work with State Attorney General's Office to reaffirm authority in existing State law | MDNRF | N/A |
| *Provide Resources for Fishway Operation Maintenance | Conducted by Fish Passage Project Staff and whenever possible by owner of dam | MDNRF | Ongoing |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Work cooperatively with utilities, and work with appropriate state and federal agencies to review FERC licenses and intervene where necessary | MDNRPPRP MDNRF | Ongoing |
| *Assure Fish Passage in New FERC Licenses | Work with appropriate state and passage where necessary federal agencies to ensure fish | MDNRF | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | Rank sites based on existing inventory updated as necessary | MDNRF | Annually |

MD Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Reintroduction (continued) | | | |
| *Initiate Reintroduction Programs | Stock fish as necessary in conjunction with passage projects | MDNR | Ongoing |
| *Develop Trap and Transport Or Hatchery Stocking Program | Acquire staff to implement program; contract additional assistance | MDNR | FY |
| *Identify Potential Sources of Fish for Trap/Transport | Identify viable spawning runs for fish collection utilizing inventory and additional data; coordinate with BAFMP | MDNR | Ongoing |
| *Acquire Trap/Transport Equipment | Acquire truck, other equipment, in FY 1989 budget | MDNR | January, 1990 |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs to Protect New Populations | Apply regulations as necessary in coordination with BAFMP; utilize staff/contractual assistance for monitoring | MDNR | Ongoing |
| *Assure Adequate Water Quality in Target Streams | Identify and reclassify streams; implement/enforce water quality standards | MDE, MDNR | Ongoing |
| Education | | | |
| *Develop a Plan For Public Involvement and Sponsorship of Activities Related to Fish Passage | Establish a demonstration passage project; encourage Save Our Streams to promote fish passage; utilize slide talk, displays, TV, news media | MDNR | Ongoing |
| Monitoring | | | |
| *Submit Annual Progress Report and Plan For Upcoming Year | Submit report and plan to BFPW assigned to Fish Passage Project Staff | MDNR | Annually in January |

MD Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|----------------------|-------------------------|
| Supplementing Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | Continue to utilize FWS technical services and demonstrate need for further assistance | MDNRF | Ongoing |
| *Sponsor Technical Workshop in Bay Region | Support FWS workshop and contribute financially if possible | MDNRF | 1990 |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | Develop university contacts and communicate needs | MDNRF | Ongoing |
| *Encourage FWS Cooperative Units in the Bay Watershed | Encourage FWS to establish fish passage Cooperative Unit in Maryland and provide guidance to Unit | MDNR | Ongoing |

**VIRGINIA
Implementation Plan**

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|--|-------------------------------|
| <p>Establish an Ongoing Baywide Fish Passage Workgroup</p> | <ul style="list-style-type: none"> •Continue participation in BFPW through FPC •Participate in VAFRC | <p>Council VDGIF</p> <p>VMRC Council VDGIF</p> | <p>Ongoing</p> <p>Ongoing</p> |
| <p>Updating a Comprehensive Inventory of Obstructions</p> | <ul style="list-style-type: none"> *Inventory Dams and Other Obstructions *Reassess Priorities Annually | <p>VDGIF</p> <p>VDGIF</p> | <p>1992</p> <p>Ongoing</p> |
| <p>Establishing a Multi-Faceted Approach to Migratory Fish Impediments</p> | <p>Culverts and Highway Impediments</p> <ul style="list-style-type: none"> *Design All Future Culverts to Assure Passage | <p>VDOT</p> <p>VMRC</p> | <p>Ongoing</p> <p>Ongoing</p> |
| <p>*Inventory Blockages and Prepare Remediation Strategy</p> | <p>Complete state inventory (VDOT) and rank projects in cooperation with VDGIF</p> | <p>VDOT VDGIF</p> | <p>1992</p> |

VA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Small Dams | | | |
| *Rank Future Fishway Projects | Develop priority listing based on computerized inventory and rank application of revolving loan fund (VAFRC) | VDGIF | Ongoing |
| *Develop Technical Expertise | Provide (by VAFRC) additional training of VDGIV Engineers and Biologists | VCOE VDFIG | Ongoing 1990 |
| *Involve Local Government | Cost share local (Council) passage projects under revolving loan fund with technical assistance from VDGIF | VCOE | Project Specific |
| *Provide for Adequate Funding | Implement revolving fund; seek funding for Fish Passage Coordinator | VCOE VDGIF | 1990-92 |
| *Assure Adequate Legal Authority | Review state fish passage law and recommend changes as necessary | VDGIF | 1990-91 |
| *Provide Resources for Fishway Operation/Maintenance | Provide oversight (VDGIF) for dam owner responsibility. | VDGIF | Ongoing |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Maintain files on licensing status of facilities; encourage cooperative approach with utilities but intervene in FERC licensing as necessary in cooperation with appropriate agencies | VDGIF | 1990-92 |
| *Assure Fish Passage in New FERC Licenses | Coordinate state agency review and prescribe passage facilities as necessary | VCOE VDGIF | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | Utilize ranking process based on inventory through VAFRC | VDGIF | Ongoing |

VA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|----------------------|-------------------------|
| Reintroduction (continued) | | | |
| *Initiate Reintroduction Programs | Apply program as necessary in conjunction VAFRC (VDGIF) | VDGIF | 1990-92 |
| *Develop Trap/Transport Or Hatchery Stocking Program | Utilize existing and new facilities/equipment as necessary under VAFRC guidance | VDGIF | 1990-92 |
| *Identify Potential Sources of Fish for Trap/Transport | Identify fishery resources for stocking in coordination with BAFMP (VAFRC and BFPW) | VDGIF | 1990-91 |
| *Acquire Trap/Transport Equipment | Acquire equipment as necessary | VDGIF | 1990-91 |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs to Protect New Populations | Apply protective regulations as necessary in cooperation with other agencies and the BAFMP | VDGIF | Ongoing |
| *Assure Adequate Water Quality in Targeted Streams | Consult and work with WVCB and through permit process (FP coordinator) | VDGIF | Ongoing |
| Education | | | |
| *Develop a Plan For Public Involvement and Sponsorship of Activities Related to Fish Passage | Contribute to public education/information programs | VDGIF VCOE | |
| Monitoring | | | |
| *Submit Annual Progress Report and Plan For Upcoming Year under VAFRC | Submit report annually based on monitoring and evaluation | VDGIF | Annually |

VA Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|----------------------|-------------------------|
| Supplementing Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | Utilize existing FWS coordinator to promote additional federal assistance | VDGIF VCOE | Ongoing |
| *Sponsor Technical Workshop in Bay Region | Support FWS workshop and possibly contribute financially | VDGIF VCOE | 1990 |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | Encourage communication between VAFRC and universities | VDGIF VCOE | Ongoing |
| *Encourage FWS Cooperative Units in the Bay Watershed | Provide guidance to Unit on fish passage projects | VDGIF | Ongoing |

District of Columbia
Implementation Plan

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Establish an Ongoing Baywide Fish Passage | | | |
| *Coordinate Baywide Fish Passage Efforts | Participate on BFPW | DCF | Ongoing |
| Updating a Comprehensive Inventory of Obstructions | | | |
| *Inventory Dams and Other Obstructions | None | DCF | Complete |
| *Reassess Priorities Annually | Coordinate with Park Service and Corps of Engineers | DCF | Ongoing |
| Establishing a Multi-faceted Approach to Migratory Fish Impediments | | | |
| Culverts and Highway Impediments | | | |
| *Design All Future Culverts to Assure Passage | N/A | N/A | N/A |
| *Inventory Blockages and Prepare Remediation Strategy | N/A | N/A | N/A |
| Small Dams | Evaluate habitat and assign priority | DC | |
| *Rank Future Fishway Projects | - | | |
| *Develop Technical Expertise | - | DCF/NPS | Ongoing |
| *Involve Local Government | Contact/negotiate | DCF/NPS | Ongoing |
| *Provide for Adequate Funding | - | DCF/NPS | Ongoing |
| *Assure Adequate Legal Authority | N/A | DCF/NPS | Ongoing |

DC Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|----------------------|-------------------------|
| *Provide Resources for Fishway Operation/Maintenance | - | DCF/NPS | Ongoing |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | N/A | N/A | N/A |
| *Assure Fish Passage in New FERC Licenses | N/A | N/A | N/A |
| Reintroduction | | | |
| *Identify Suitable Locations | Assist National Park Service | DC | 1991 |
| *Initiate Reintroduction Programs | Assist States FWS | DC | Ongoing |
| *Develop Trap/Transport Or Hatchery Stocking Program | N/A | N/A | N/A |
| *Identify Potential Sources of Fish for Trap/Transport | N/A | N/A | N/A |
| *Acquire Trap/Transport Equipment | N/A | N/A | N/A |
| *Implement Management Plans, Regulatory Measures, and, Monitoring Programs, to Protect New Populations | Protect new populations | DC | Ongoing |
| *Assure Adequate Water Quality | Assure adequate water quality | WHB | Ongoing |
| Education | | | |
| *Develop a Plan for Public Involvement and Sponsorship of Activities Related to Fish Passage | Develop plans for public involvement and sponsorship | DC | ? |

DC Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|---|----------------------|-------------------------|
| Monitoring | | | |
| *Submit Annual Progress Report and Plan for Upcoming Year | Evaluate fishway effectiveness and prepare annual report in Cooperation with BFPW | DC | Annually |
| Supplementing Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | Utilize existing FWS services and further assistance as necessary | DCF | Ongoing |
| *Sponsor Technical Workshop in Bay Region | Support and participate | DCF | Ongoing |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | Develop university contacts and communicate needs | DCF | Ongoing |
| *Encourage FWS Cooperative Units in Bay Watershed | Work with Cooperative Units on relevant projects | DCF | Ongoing |

**US FISH AND WILDLIFE SERVICE
Implementation Plan**

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|--------------------------------|---------------------------------|
| <p>Establish an Ongoing Baywide Fish Passage Workgroup</p> | <p>Participate on BFPW VAFRC and DCFSC</p> | <p>VFC, AFO PRFC, CBEP</p> | <p>Ongoing</p> |
| <p>Update a Comprehensive Inventory of Obstructions</p> | <p>None</p> | <p>N/A</p> | <p>N/A</p> |
| <p>*Inventory Dams and Other Obstructions</p> | | | |
| <p>*Reassess Priorities Annually</p> | <p>Participate in work planning</p> | <p>VFC PRFC</p> | <p>Annually process AFO</p> |
| <p>Establish a Multi-Faceted Approach to Migratory Fish Impediments</p> | | | |
| <p>Culverts and Highway Impediments</p> | | | |
| <p>*Design All Future Culverts to Assure Passage</p> | <p>None</p> | <p>N/A</p> | <p>N/A</p> |
| <p>*Inventory Blockages and Prepare Remediation Strategy</p> | <p>Make recommendations for fish passage at highway projects</p> | <p>AFO</p> | <p>Ongoing</p> |
| <p>Small Dams</p> | | | |
| <p>*Prioritize Future Fishway Projects</p> | <p>Assist in determining restoration potential</p> | <p>VFC, PRFC AFO, SRFC</p> | <p>Annually</p> |
| <p>*Develop Technical Expertise</p> | <p>*Provide engineering expertise</p> | <p>RO</p> | <p>Ongoing</p> |
| | <p>*Provide biologist assistance for assessing restoration potential</p> | <p>VFC CBF, CSRFC</p> | <p>Ongoing</p> |

USFWS Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|--|---|-------------------------|
| Small Dams (continued) | | | |
| *Involve Local Government | Develop public awareness/education programs | CBEP | Ongoing |
| *Provide for Adequate Funding | Provide Federal Aid for projects that qualify | RO | Annually |
| *Assure Adequate Legal Authority | None | N/A | N/A |
| *Provide Resources for Fishway Operations/Maintenance | None | N/A | N/A |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Require passage for reopened licenses | AFO | Ongoing |
| *Assure Fish Passage in New FERC Licenses | Require passage for new licenses | AFO | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | Assist states in identification | VFC, CBFC | Annually |
| *Initiate Reintroduction Programs | Assist states | VFC, PRFC CBFC, SRFC | Ongoing |
| *Develop Trap/Transport Or Hatchery Stocking Program | <ul style="list-style-type: none"> •Assist in developing guidelines •Improve Harrison Lake facility •Assist broodstock capture rearing reintroduction | VFC, PRFC CBFC, SRFC VFC, CBFC VFC, BFC HLNFH, SRFC | 1991 1991 1991 |
| *Identify Potential Sources of Fish for Trap/Transport | Assist in identification | VFC, CBFC VFC, CBFC | Annually |
| *Acquire Trap/Transport Equipment | Acquire portion of total equipment needed | VFC, CBFC | Ongoing |

USFWS Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|--|--------------------------------|-------------------------|
| Reintroduction (continued) | | | |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs, to Protect New Populations | <ul style="list-style-type: none"> • Participate in restoration program • Assist w/population monitoring | VFC, CBFC VFC, CBFC SRFC | Ongoing Ongoing |
| *Assure Adequate Water Quality in Targetted Streams | Review permit and license applications | AFO | Ongoing |
| Education | | | |
| *Develop Plan for Public Involvement and Sponsorship of Activities Related to Fish Passage | <ul style="list-style-type: none"> • Assist development of active education program | CBEP | 1991 |
| Monitoring | <ul style="list-style-type: none"> • Develop displays, videos, slide presentation | CBEP | 1991 |
| D | *Submit Annual Progress Report and Plan for Upcoming Year | VPC, CBFC SRFC | Ongoing |
| Supplement Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | N/A | N/A | N/A |
| *Sponsor Technical Workshop In Bay Region | Provide fish passage course and engineer | FWS | 1990 |
| *Encourage Regional Educational Institution to Focus on Fish Passage Issue | <ul style="list-style-type: none"> • Work w/colleges to develop interdisciplinary programs | CBEP | 1991 |
| *Encourage FWS Cooperative Units in the Bay Watershed | <ul style="list-style-type: none"> • Work w/schools to educate young people | CBEP | 1991 |
| | Advertise Cooperative Education Program | FWS | Ongoing |

National Marine Fisheries Service
Implementation Plan

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|--|---|----------------------|-------------------------|
| Establish an Ongoing Baywide Fish Passage | | | |
| *Coordinate Baywide Fish passage Efforts | Participate on BFPW VAFRC DCFSC | OFO | Ongoing |
| Update a Comprehensive Inventory of Obstructions | | | |
| *Inventory Dams and Other Obstructions | None | N/A | N/A |
| *Reassess Priorities Annually | Participate in work planning process | OFO | Annually |
| Establish a Multi-Faceted Approach to Migratory Fish Impediments | | | |
| Culverts and Highway Impediments | | | |
| *Design All Future Culverts to Assure Passage | None | N/A | N/A |
| *Inventory Blockages and Prepare Remediation Strategy | Make recommendations for fish passage at highway projects | OFO | Ongoing |
| Small Dams | | | |
| *Rank Future Fishway Projects | Assist in determining restoration potential | OFO | Ongoing |
| *Develop Technical Expertise | None | N/A | N/A |
| *Involve Local Government | None | N/A | N/A |
| *Provide for Adequate Funding | Provide Federal Aid for projects qualify | RD | Annually |
| *Assure Adequate Legal Authority | None | N/A | N/A |

NMFS Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|--|----------------------|-------------------------|
| *Provide Resources for Fishway Operation/Maintenance | None | N/A | N/A |
| Hydroelectric Facilities | | | |
| *Assure Fish Passage at Existing Facilities | Require passage for new licenses | OFO | Ongoing |
| *Assure Fish Passage in New FERC Licenses | Require passage for new licenses | OFO | Ongoing |
| Reintroduction | | | |
| *Identify Suitable Locations | None | N/A | N/A |
| *Initiate Reintroduction Programs | None | N/A | N/A |
| *Develop Trap/Transport Or hatchery Stocking Program | None | N/A | N/A |
| *Identify Potential Sources of Fish for Trap/Transport | None | N/A | N/A |
| *Acquire Trap/Transport Equipment | None | N/A | N/A |
| *Implement Management Plans, Regulatory Measures, and Monitoring Programs, to Protect New Populations | None | N/A | N/A |
| *Assure Adequate Water Quality in Targeted Streams | Review permit and license applications | OFO | Ongoing |
| Education | | | |
| *Develop a Plan for Public Involvement and Sponsorship of Activities Related to Fish Passage | None | N/A | N/A |

NMFS Plan (continued)

| Strategy Recommendation | Implementing Actions | Responsible Agencies | Implementation Schedule |
|---|----------------------|----------------------|-------------------------|
| Monitoring | | | |
| *Submit Annual Progress Report and Plan for Upcoming Year | None | N/A | N/A |
| Supplementing Technical Resources in the Bay Watershed | | | |
| *Encourage FWS Assistance in the Bay Region | None | N/A | N/A |
| *Sponsor Technical Workshop in Bay Region | None | N/A | N/A |
| *Encourage Regional Educational Institutions to Focus on Fish Passage Issue | None | N/A | N/A |
| *Encourage FWS Cooperative Units in Bay Watershed | None | N/A | N/A |

**Projected Resource Needs
To Fulfill Implementation Plan
Through 1992 Budget ***

| <u>Agency</u> | <u>Operations</u> | <u>Capital</u> | <u>Personnel</u> | <u>Potential Funding Sources</u> |
|---------------|-------------------|----------------|------------------|--|
| PFC | \$ 42,800 | \$ 24,900 | 2 | Fish Fund (License Revenue) |
| MDNR | \$ 920,000 | \$1,242,500 | 9 | State Funds (Ches. Bay, General and Special) Federal Funds |
| VDGIF | \$ 241,033 | | 2 | License Revenue with matching Federal Aid Funds |
| VCOE | | \$6,000,000 | | General Funds |
| DCF | \$ 30,000 | \$ 60,000 | | License Revenue with matching Federal Aid Funds |
| USFWS | \$1,575,000 | \$170,000 | 11 | Appropriation |
| NMFS | - 0 - | - 0 - | 0 | N/A |

1. Operations represent cumulative needs through FY 1992 and includes current FY 1990 Funding of \$180,000 plus requested FY 1991 Funding of \$323,000 and additional \$417,000 need in FY 1992.
2. Capital costs do not include necessary costs for rehabilitation of Bloede and Daniels Dams, approximating \$3.5 million; nor cost (\$12.5 million) at Conowingo to be provided by Philadelphia Electric Company. Also projecting \$1,326,500 in additional private and local funds to be acquired for completion of Capital projects.
3. Personnel includes current FY 1990 staff (3) and requested FY 1991 staff (2), plus 4 additional, for a total of nine by FY 1992.
4. See next page for cost breakdown.

* State budget years through 6/30; D.C. and Federal through 9/30.

PFC = Pennsylvania Fish Commission
MDNR = Maryland Department of Natural Resources
VDGIF = Virginia Department of Game and Inland Fisheries
VCOE = Virginia Council on Environment
DCF = District of Columbia Fisheries
USFWS = U.S. Fish and Wildlife Service
NMFS = National Marine Fisheries Service

US Fish and Wildlife Service
 Projected Resource Needs
 to Fulfill Implementation Plan
 Through 1992 Budget Year

| Agency | Operations | Capitol | Personnel | Potential Funding Sources |
|--------------|---------------------|-------------------|-----------|---------------------------|
| VFC | \$ 780,000 | 0 | 5 | Appropriation |
| PRFC | \$ 225,000 | 0 | 2 | " |
| CBFC | \$ 420,000 | 0 | 3 | " |
| SRFC | 0 | 0 | 0 | " |
| AFO | 0 | 0 | 0 | " |
| CBEP | - | \$ 65,000 | 0 | " |
| HLNFH | 0 | \$ 105,000 | 0 | " |
| RO | \$ 150,000 | 0 | 1 | " |
| Total | \$ 1,575,000 | \$ 170,000 | 11 | |

- VFC - Virginia Fisheries Coordinator
- PRFC - Potomac River Fisheries Coordinator
- CBFC - Chesapeake Bay Fisheries Coordinator
- SRFC - Susquehanna River Fisheries Coordinator
- AFO - Annapolis Field Office
- CBEP - Chesapeake Bay Estuary Program
- HLNFH - Harrison Lake National Fish Hatchery
- RO - Regional Office, FWS Region 5

KEY

AFO Annapolis Field Office (USFWS)
AG State Attorney General
BAFMP Baywide Alosid Fishery Management Plan
BFPW Baywide Fish Passage Workgroup
CBEP Chesapeake Bay Estuary Program (USFWS)
CBF Chesapeake Bay Foundation
CBFC Chesapeake Bay Fisheries Coordinator (USFWS)
CORPS US Army Corps of Engineers
DCF District of Columbia Fisheries
DOT US Department of Transportation
FERC Federal Energy Regulatory Commission
FHA Federal Highway Administration
FMP Fishery Management Plan
FP Fish Passage
FPC Fish Passage Coordinator (VA)
HLNFH Harrison Lake National Fish Hatchery
LGAC Local Government Advisory Committee
LOCAL Municipal or County Government
MDE MD Dept. of Environment
MDNRF MD Dept. of Natural Resources--Fisheries
MDNRPPR MD Dept. of Natural Resources Power Plant Research
MDNRWRA MD Dept. of Natural Resources--Water Res. Admin.
MSHA MD State Highway Administration
NMFS National Marine Fisheries Service
NPS National Park Service
OFO Oxford Field Office (NMFS)
PDER PA Department of Environmental Resources
PDOT PA Department of Transportation
PFC PA Fish Commission
PRFC Potomac River Fisheries Coordinator (USFWS)
PSU PA State University
RO Regional Office (USFWS or NMFS)
SFPW State Fish Passage Workgroup (MD)
SRFC Susquehanna River Fisheries Coordinator (USFWS)
USEPA US Environmental Protection Agency
USFWS US Fish and Wildlife Service
VAFRC VA Anadromous Fish Restoration Committee
VCOE VA Council on Environment
VDGIF VA Dept. of Game and Inland Fisheries
VDOT VA Dept. of Transportation
VFC VA Fisheries Coordinator (USFWS)
VMRC VA Marine Resources Commission
WVCB VA Water Control Board
WHB Water Hygiene Board (DC)

Section II:
1989 Progress Reports

PENNSYLVANIA LIVING RESOURCES
1989 PROGRESS REPORT ON FISH PASSAGE

The Pennsylvania Fish Commission was signatory to the May 22, 1989, fish passage facility signing at Conowingo Dam. This ceremony represented the major step necessary in the permanent reopening of the Susquehanna River for American shad and other diadromous fishes to enter their historic spawning and nursery water in Pennsylvania.

Although the permanent fishway installation at Conowingo will not take place until 1991, Commission staff are already anticipating the introductions of various diadromous fishes, other than American shad, into the Conowingo Reservoir and several larger tributaries such as Conowingo, Fishing and Muddy Creeks. These and perhaps other tributaries will be inventoried for dam structures and other obstructions in conjunction with the Chesapeake Bay Fish Passage Work Group activities. Fishways or other means to permit species such as the river herrings and eels to use these waters for spawning and/or nursery habitat will be sought as soon as practicable.

The Pennsylvania Fish Commission is actively working with the Pennsylvania Department of Environmental Resources in having the Elk Creek Basin in Chester County properly classified for migratory fishes and water quality purposes. The Commission has promulgated regulations to prohibit harvest river herring from Elk Creek, over eight inches in length, to protect spawning stocks. All of these measures have been taken in a cooperative effort with the Maryland Department of Natural Resources for the joint restoration of river herring and possible other diadromous species in Elk Creek.

Even though permanent fish passage facilities will be constructed at Conowingo Dam for the 1991 season, the lack of fishways at Holtwood, Safe Harbor and York Haven Dams upstream present formidable problems which remain in the successful restoration of American shad in the Susquehanna. Because of this fact, ongoing negotiations with the upstream hydropower project owners continue in a constructive manner, with various studies and selection of fishway design firms taking place. An overall goal of fishways at all projects by the year 2000 is tentatively being sought.

1989 PROGRESS REPORT ON AMERICAN SHAD
RESTORATION AND RESEARCH ACTIVITIES

Pennsylvania continued to work with other agencies and hydropower project owners on the ongoing program of the Susquehanna River Anadromous Fish Restoration Committee (SRAFRC). A record total of 8,311 adult American shad were taken at the Conowingo fish lift in 1989. Of this number, 6,816 prespawned fish were successfully transported upstream and released into a freeflowing section of the Susquehanna with suitable spawning habitat.

The Pennsylvania Fish Commission's Van Dyke Fish Cultural Station produced a record number of 21,807,577 American shad fry 20,664,645 of which were stocked into the Juniata and Susquehanna Rivers as part of the SRAFRC program. A projected number of 60,000 fingerlings will also be stocked from Commission facilities later this year.

Research being conducted as part of the SRAFRC program includes continued activities in juvenile shad marking, radiotelemetry, hydroacoustics and strobe light studies. Juvenile marking has been successful in helping differentiate fish produced by artificial culture from naturally reproduced fish from the adults moved upstream. Radiotelemetry involves the use of small transmitters attached to both adult and juvenile fish. By tracing transmitter activity it is possible to establish migratory and movement patterns through power project facilities, including impoundments. This will help in the future design and operation of facilities at each power project to improve safe passage of more adults and downmigrating juveniles. Hydroacoustic experimentation involves the use of ultrasound monitoring through which a relative abundance index of juvenile fish passing downstream can be annually made and it also provided detailed annual information on the timing of juvenile outmigration patterns. Although sound generators, underwater strobe lights and mercury vapor lights were used in a 1988 experiment to help repel juvenile shad from operating turbines and attract them to safer exits at a project dam, only the strobe lights showed promise for further utility in controlling downmigrating juveniles. For this reason, strobe light experimentation will continue in 1990.

1989 PROGRESS REPORT FOR
MARYLAND FISH PASSAGE PROJECTS

| | <u>Project</u> | <u>Completion Stage (12/89)</u> | <u>Current Status of Completion</u> |
|----|---|---------------------------------|---|
| A. | Little Falls Dam Potomac River | S,D | Final engineering design completed, waiting for Corps of Engineers and other permits to start construction process and transfer of Port America funding to DNR. |
| B. | Pierce Mill Dam Rock Creek | P,S,M | Fish passage assessment being done under National Park Service and DC contract with recommendations for fish passage. Need D.C./MD/Park Service final plan and F&WS conceptual design plan for passage. |
| C. | Northwest Branch Dam #1 | P | On-going work with WSSC to modify dams to permit passage with their in-house crew and funding. |
| D. | Dam #2 | P | |
| E. | Dam on Northeast Branch | D | F&WS Service plan of fish passage completed, developer to provide fish passage mitigation when stream crossing constructed. |
| F. | Ft. Meade Dam, Little Patuxent River | P,S | Department of the Army contacted and flow measurements are in process for conceptual fish ladder design by F&WS. DNR requested Army to budget funds for engineering design and fish ladder construction in FY 1991. |
| G. | USGS Flow Weir Bacon Ridge Branch | S | Plan for Alaskan steep pass fish ladder cancelled due to non-stable structure. Due to stream liming project the structure will be removed in 1991. |
| H. | Culvert on North River | M | Older culvert replaced with new culvert to provide for fish passage. |
| I. | Dam on Stony Run | S | Seagram's requested to remove dam or provide passage. Retention of dam chosen. A conceptual fish ladder design plan for an Alaskan steep - pass fishway is in process. |
| J. | Dam on Deep Creek | M | Dam removed in spring of 1989 by SHA/DNR under cooperative effort as mitigation enhancement for I-95 highway crossing. |
| K. | Bloede Dam Patapsco River | S | Legislature rejected \$1.6 million capital budget request for dam stabilization; \$200,000 approved for study to determine cost of dam removal versus stabilization and fish ladder in 1989. Study completed in November 1989 and to be presented to General Assembly in January. |

Key - Completion Stage

P - PLANNING
S - SURVEY
M - MONITORING
D - DESIGN

PROGRESS REPORT FOR MARYLAND FISH PASSAGE PROJECTS
 December 1989 (continued)
 Page 2

| <u>Project</u> | <u>Completion Stage (12/89)</u> | <u>Current Status of Completion</u> |
|--|---------------------------------|--|
| L. Simkins Dam, Patapsco River | P | Flow measurements for passage design completed by DNR and waiting for F&WS conceptual fish ladder design. To meet with ownership of dam and develop an engineering study for other alternatives to provide fish passage. Funding arrangements to be made for passage at the privately owned structure. |
| M. Union Dam, Patapsco River | C | Howard County Dept. of Public Works and DNR provided engineering design services for fish passage interim construction at breach in dam. Construction to be completed for passage in fall of 1989 with construction cost paid by County. |
| N. Daniels Dam, Patapsco River | D | Flow measurements performed with F&WS completion of conceptual fish ladder design. Engineering study in process to evaluate stabilization of dam and other fish passage alternatives. |
| O. Dam on Winter's Run | D | Conceptual passage design plan completed by F&WS. Army has contracted for final engineering design and construction in present budget. Design and construction to be completed in 1990. |
| P. Conowingo Dam, Susquehanna River | D,M | Engineering design plans completed for additional fish lift capability and passage enhancements for downriver migrating fish. PECO design plans for passage under DNR and state/federal agencies reviews for construction permits. |
| Q. Dam on Northeast Creek | A | Cooperative work in process with Town of Northeast and Save Our Streams to remove collapsed dam. |
| R. Culvert on Dogwood Run | C | Application received from Chesapeake Clean-Up Campaign with construction completed by DNR and local groups. |
| S. Dam on Big Elk Creek | A,P,S | A demonstration denil fish ladder and planned public access project. Conceptual design completed for passage; DNR in process of contracting final engineering design. Federal aid project approved and started in 10/89 to cover final design and construction costs by DNR/NMFS with equipment/personnel support from City and \$5,000 CBF funding for information/education at site. |

Key - Completion Stage

- S - SURVEY
- P - PLANNING
- C - CONSTRUCTION
- M - MONITORING
- D - DESIGN
- A - APPLICATION

PROGRESS REPORT FOR MARYLAND FISH PASSAGE PROJECTS
December 1989 (continued)
Page 3

| | <u>Project</u> | <u>Completion Stage (12/89)</u> | <u>Current Status of Completion</u> |
|----|------------------------------------|---------------------------------|---|
| T. | Dam on Herring Run | P | Site visit and evaluation completed. |
| U. | Flow Weir on Morgan Creek | M | Project construction completed in 1988. Fish passage notch placed in weir with ongoing post-construction biological monitoring planned. |
| V. | USGS Flow Weir on Beaverdam Branch | M | Project construction completed in 1988. Fish passage notch placed in weir. Passage evaluated in 1989 and was successful; an ongoing project. |
| W. | Culvert on Fifteen Mile Creek | A | Application received for fish passage at site; project in County planning stage and related to SHA study of problem highway culverts that are targeted for future passage mitigation. |
| X. | Dam on Tuckahoe River | P | Project in planning stage and to be initiated in FY 1991. The Fish Passage project is related to the DNR German Branch stream restoration project located on an upstream tributary. |
| | Summary: | | 24 Projects in Progress (Construction completed for 5 projects). |

Key - Completion Stage

P - PLANNING
M - MONITORING
A - APPLICATION

Key-Completion Stage

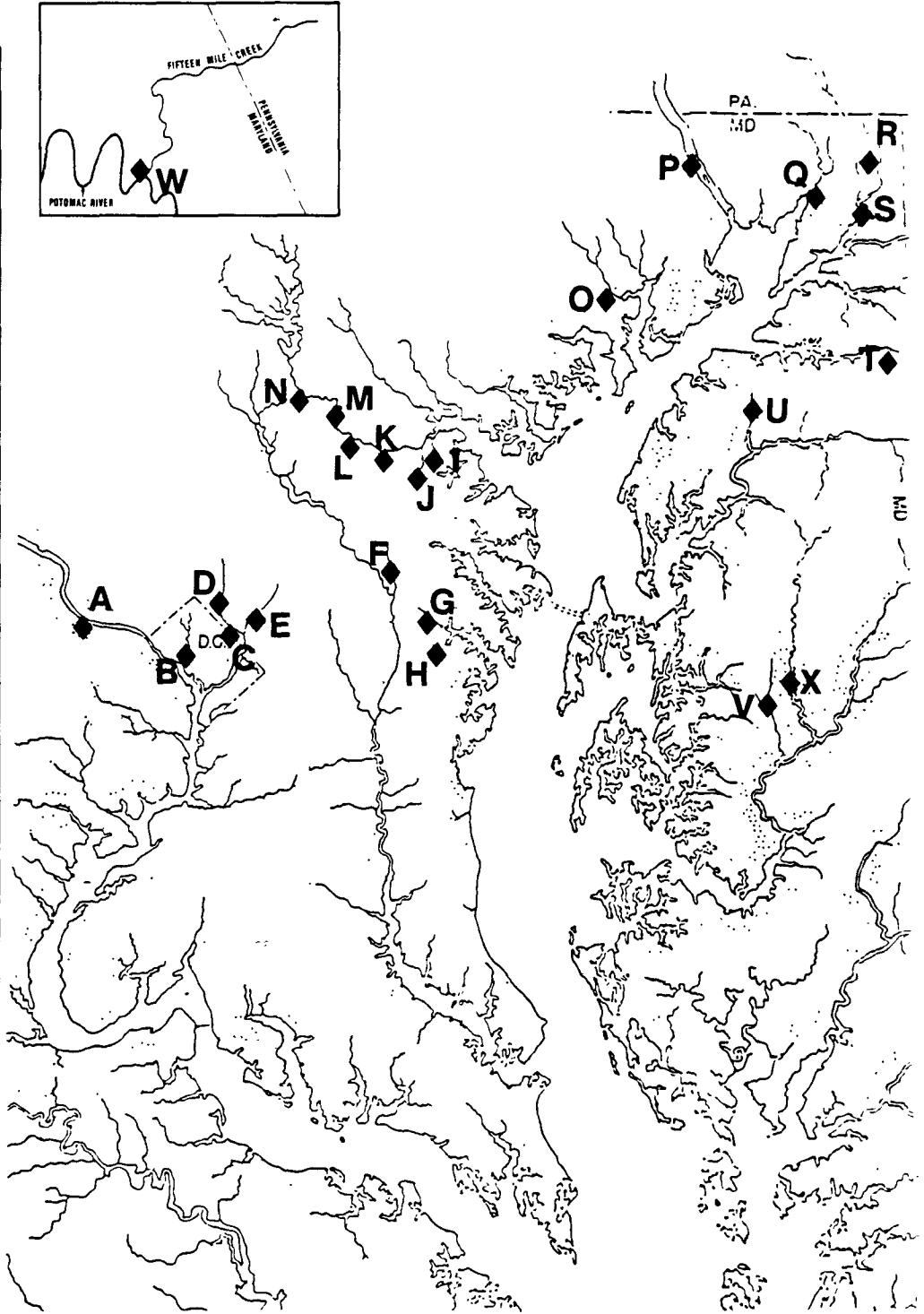
A-APPLICATION Priority site or request for fish passage established.
P-PLANNING Cooperative development of passage concept plan in progress.
S-SURVEYS Hydrographic, physical, biological, water quality, or
T-TRAP & TRANSPORT Fish stocking and restoration in upstream or downstream areas being performed habitat surveys and data evaluation in process.
D-DESIGN Conceptual or final engineering design plan for fish passage in progress.
C-CONSTRUCTION Bidding, award, or construction work for fish passage in progress.
M-MONITORING Biological water quality, or habitat monitoring assessments, for evaluation of fish passage and species restorations being conducted.
O-ONGOING Operation/maintenance, of fish passage, establishing appropriate stream classificaitons for water quality, habit, and fisheries maintenance; reporting study results, etc.

Refer to map (Maryland Chesapeake Bay Priority Sites For Migratory Fish Passage, 1988-91) for project site locations and summary table (1989 Progress Report for Maryland Fish Pa ssage Projects) for supplementary information and projected completion stage.

MARYLAND CHESAPEAKE BAY PRIORITY SITES FOR MIGRATORY FISH PASSAGE 1988 - 1992

(Listing Includes Completed FY89 Projects,
Plus FY90, FY91 & FY92 Projects to be Completed.)

| SITE KEY | | | |
|----------|--|---------------|-------|
| CODE | RIVER SYSTEM/ STRUCTURE | RIVER MILE | CO. |
| A | Potomac River/ Little Falls Dam | 117.4 | MO |
| B | Potomac River/ Pierce Mill Dam, Rock Creek | 4.4 | DC |
| C | Potomac River/ Northwest Branch, Dam #1 | 1.0 | PG |
| D | Potomac River/ Northwest Branch, Dam #2 | 1.1 | PG |
| E | Potomac River/Dam on Northeast Branch | 2.3 | PG |
| F | Little Patuxent River/ Ft. Meade Dam | 11.6 | AA |
| G | South River/USGS Flow Weir, Bacon Ridge Branch | 1.4 | AA |
| H | South River/Culvert on North River | 1.0 | AA |
| I | Patapsco River/ Dam on Stony Run | 0.1 | AA |
| J | Patapsco River/ Dam on Deep Creek | 0.1 | AA/HO |
| K | Patapsco River/ Bloede Dam | 21.1 | BA/HO |
| L | Patapsco River/ Simkins Dam | 22.6 | BA/HO |
| M | Patapsco River/ Union Dam | 26.4 | BA/HO |
| N | Patapsco River/ Daniels Dam | 30.0 | BA/HO |
| O | Bush River/Dam on Winter's Run | 2.5 | HA |
| P | Susquehanna River/ Conowingo Dam | 9.9 | HA/CE |
| Q | Northeast River/Dam on Northeast Creek | 1.2 | CE |
| R | Elk River/Culvert on Dogwood Run | 2.0 | CE |
| S | Elk River/Dam on Big Elk Creek | 4.5 | CE |
| T | Sassafras River/ Dam on Herring Run | 0.6 | CE/KE |
| U | Chester River/ USGS Weir, Morgan Creek | 6.0 | KE |
| V | Choptank River/ USGS Weir, Beaver Dam Branch | 1.3 | TA |
| W | Potomac River/ Culvert on Fifteen Mile Creek | 0.1 | AL |
| X | Tuckahoe River/ Tuckahoe Dam | 17.8 | CO/QA |



Nearly 100 structures are barriers to anadromous fish species
(striped bass, shad, herring and perch) in Maryland.
Smaller streams and other fish barriers on rivers and streams are not depicted
which comprise additional future fish passage projects.

1989 PROGRESS REPORT

VIRGINIA FISH PASSAGE PROGRAM

Virginia Fish Passage Grant and Revolving Fund

The 1989 General Assembly passed legislation establishing the Virginia Fish Passage Grant and Revolving Fund. The fund, to be administered by the Council on the Environment, will provide 75% cost share grants with 25% low-interest loans for fishway construction on municipally-owned dams. Variable interest rate loans will be available to private dam owners. When funding is available and when the Council, the Department of Game and Inland Fisheries and the Marine Resources Commission targets a dam for fish passage restoration and makes an offer for financing the project, the dam owner must accept. In the event that hydroelectric power is subsequently developed on any Revolving Fund-financed project all granted or loaned monies must be repaid to the fund within one year of licensing.

Embrey Dam, Rappahannock River

The General Assembly appropriated \$125,000 to the Revolving Fund in 1989 which was designated to be matched equally with the city of Fredericksburg for the design of a fishway at Embrey Dam. The city has incorporated a preliminary investigation for fish passage into a feasibility study, currently underway, to improve or relocate its public water supply facility which now utilizes Embrey Dam. The outcome of the feasibility study should be decided early in 1990 and will affect the fishway design.

James River Fishways

The first of three phases for fish passages at the five dams on the James River in Richmond got underway in January, 1989. Section on the north side of Manchester and Brown's Island dams were blasted to make way for migratory species. The project was jointly funded by the Council on the Environment (\$900,000), then Department of Game and Inland Fisheries (\$140,000), and the city of Richmond (\$300,000). The first phase will be completed when hydraulic gates, currently being manufactured, are installed in the breached sections of Brown's Island Dam. The gates are to maintain water levels behind the dam during dry seasons. The second and third phases of the overall project will involve construction of fishways at William's Island and Boshers Dams respectively.

A monitoring study was initiated in March to assess the effectiveness of the breaches and to determine where the fish are approaching the next impediment five miles upstream at William's Island Dam. While monitoring was hampered by high flows during the base of William's Dam indicate that fish were able to pass the breached dams. Monitoring is expected to continue next spring and in the subsequent springs. Harrison Lake Fish

Hatchery (on tributary to James R.)

The U.S. Fish and Wildlife Service constructed a denil fishway at the Harrison Lake dam last year. A minimal survey was conducted this by the service to determine if the structure was able to pass fish. A hoop net placed for a short time at the top of the fishway captured a few specimens of migratory fish (lamprey, blue back herring, and gizzard shad). The Department of Game and Inland Fisheries conducted a late summer electroshocking survey in the lake to look for evidence of adults and juveniles which might have been still lingering in the lake before their downstream migration. Neither adults or juveniles were found.

Walker's Dam, Chickahominy River (James R. tributary)

The city of Newport News constructed two denil fishways on Walker's Dam on the Chickahominy River, which were operational for the first time this spring. The Virginia Institute of Marine Science and the Department of Game and Inland Fisheries conducted monitoring studies throughout the spawning season to determine whether the fishways were functional. Using electroshocking techniques, the Department observed large numbers of herring above and below the dam. The VIMS also observed significant numbers of herring coming through the denil fishways. Fishermen were also observed netting herring as they came out of the upper end of the fishway.

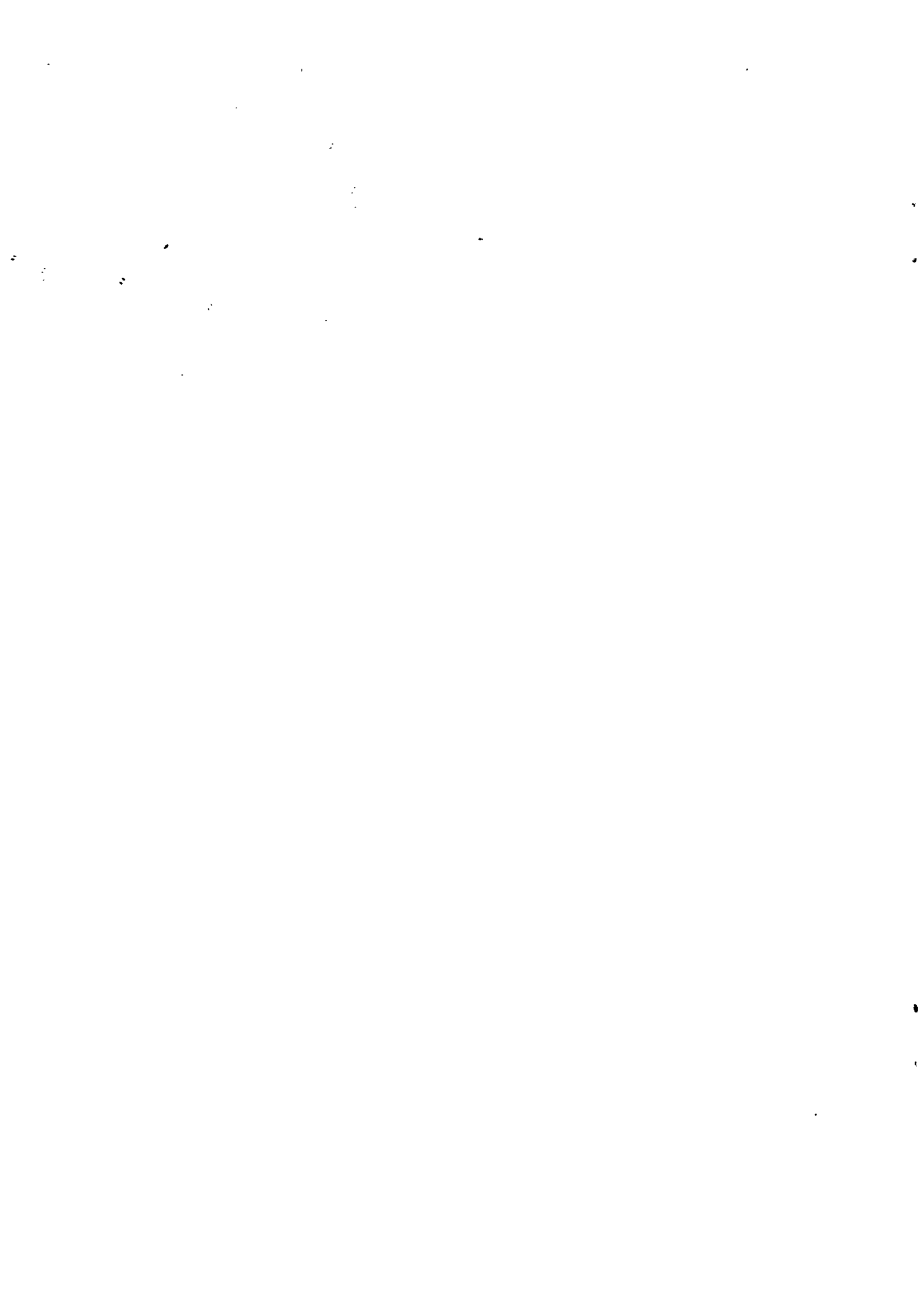
PROGRESS REPORT
ON
FISH PASSAGE IN THE DISTRICT OF COLUMBIA
FOR 1989

In 1989, the District of Columbia's Fisheries Management Program have been involved with several fish passage projects in the Washington metropolitan area. The major projects this year have been the negotiations for a fish ladder at the Little Fall Dam, and fish passage studies in Rock Creek Park. The District is committed to improving fish passage on both a local and regional scale. Our fisheries resources managers understand how important it is to improve fish passage regionally and what it will mean to the District's fisheries. The District's Fisheries Management Program has also been participating in the development of the Chesapeake Bay Fish Passage Implementation Strategy.

Fisheries resource managers from the District of Columbia, the state of Maryland and several federal agencies have been working to provide passage at the municipal water supply dam at Little Falls. This dam presently excludes migratory fishes from 10 miles of valuable Potomac River habitat. While just outside of D.C. borders, fish passage at the dam would help restore historic levels of migratory fishes to District waters.

The D.C. Fisheries Management Program is working with the Army Corps of Engineers and the National Park Service to study fish passage issues in Rock Creek Park. The Corps has completed a study for the District that included recommendations for removing impediments south of Pierce Mill Dam and the possibility a fish ladder at the dam. The National Park Service at Rock Creek Park has contracted a two year anadromous and resident fish migration study. This study will provide information on fish migration in Rock Creek Park and how the impediments are affecting passage.

The District also supports efforts to restore passage in the Anacostia River basin. Although the primary blockages on the Anacostia are outside the District, this is another opportunity for the District to benefit from upstream improvements. The District's fisheries managers lend their support to the Interstate Commission on the Potomac River Basin and the Corps which are studying ways to improve fish passage. Currently they are studying approximately 25 small blockages which limit spawning habitat for migratory fish.



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