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Maryland Water Conservation Policy Considerations

Policy Considerations

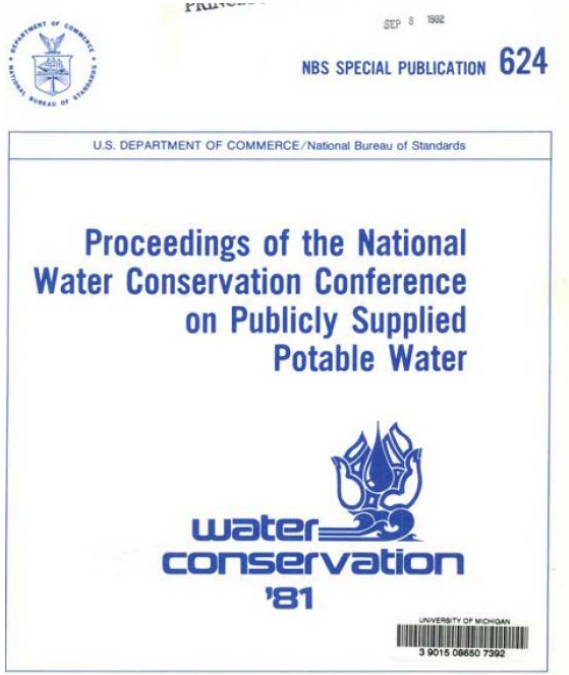
- What are WSSC's conservation objectives?
- How is conservation linked to WSSC's environmental protection, resource management, sustainability goals?
- What are WSSC customers' expectations about water conservation?
- Are there specific regulatory or operating requirements that require WSSC to implement water conservation?
- How does conservation factor into WSSC's infrastructure planning?
- How does conservation factor into WSSC's ability to meet the region's long-term growth needs?

Rate Structure Implications

- Pricing and rate design are tools to promote conservation.
- State and Federal guidance specifically identify pricing as a cost-effective strategy to promote water conservation.
- Numerous examples of conservation based rates.
- Approach must balance goals with other policies, such as revenue stability and ease of implementation.

WSSC's 1978 Conservation-Based Rate Structure

- Three Phase Conservation Strategy:
  - Publicity & Education
  - Plumbing Code revisions
  - Conservation-oriented rate structure based on:
    - Customers making increase demand would pay more for extra capacity.
    - A price structure that would encourage all customers to conserve.



WSSC's 1978 Conservation-Based Rate Structure

- New rates reduced residential usage by 13% in first year.
- Small reductions in commercial usage.
- Usage above 300 gallons per day was reduced by 9.3%.

WSSC's Water Conservation Objectives

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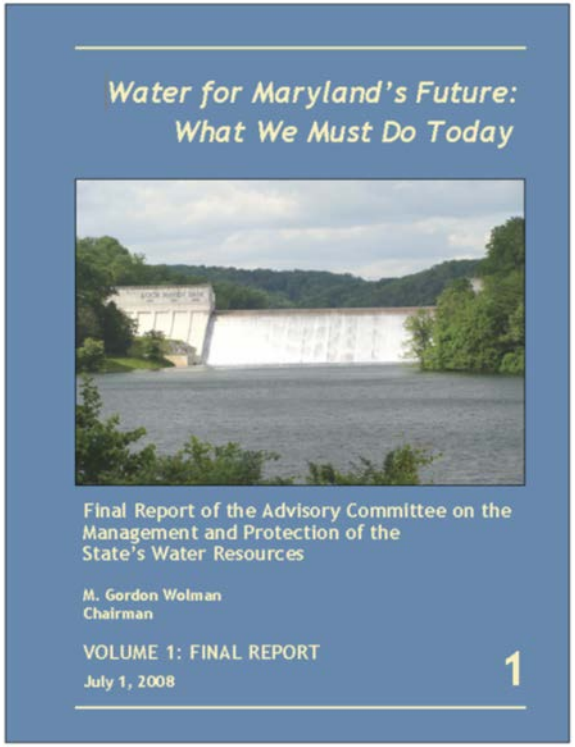
Advisory Committee on the Management and Protection of the State's Water Resources

- Severe droughts in 1999 and 2002 led to the creation of committee to develop recommendations to ensure a sustainable water supply for Maryland's citizens.
- Final report of the "Wolman Committee was issued on July 1, 2008.



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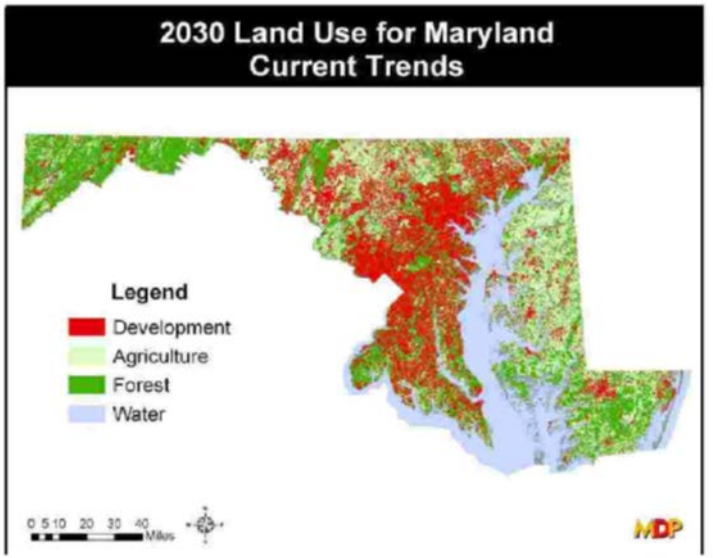
Final Advisory Committee Key Findings

- The Maryland Department of Planning forecasts that the State's population will increase by another 1.4 million Marylanders between 2000 and 2030, an additional 27 percent.
- The projected growth will result in about 670,000 new Maryland households between 2000 and 2030.
- Agricultural water use is expected to increase.
- Marylanders will compete for water.
- Water quality concerns may reduce the available supply of water.
- Climate change poses an additional challenge.



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Final Advisory Committee
Key Water Conservation Recommendations

*State and local governments should strengthen their programs for **water conservation**, water reuse, and demand management.*

- *MDE should require the use of best management practices to the extent practicable before issuing a water appropriation permit for a new or increased appropriation.*
- *State and local agencies should explore possible regulatory or other strategies that could provide users with incentives to **conserve**, reclaim and reuse water.*
- *MDE should review existing laws and regulations on the use of reclaimed water, which focus on public health protection, to determine what changes could be made that would better encourage water reuse projects without compromising public health protection.*

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Maryland Water Conservation Act

Article – Environment

Section §5–5B–03.

"It is the policy of the State of Maryland to:

(1) Encourage investment in cost-effective measures that improve the efficiency with which water is used, treated, stored, and transmitted in the State;

(2) Reduce costs associated with treating, storing, and transmitting water; and

(3) Protect the State's natural resources, including the fish and wildlife of the Potomac River, the Chesapeake Bay, and all other waters and waterways of the State."

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Maryland Water Conservation Act

Article – Environment

Section §5–5B–04

"(a) When applying for a new or expanded water appropriation permit or State financial assistance, public water systems shall include a description of best management practices currently in use, or to be implemented, for improving water conservation and the efficiency with which water is used, treated, stored, and transmitted. The application shall also include a schedule for the implementation of best management practices.

(b) ***Best management practices may include the following:***

(1) Practices designed to measure the amount of water conveyed through the system's infrastructure to water users, such as universal metering;

(2) Audits of large-volume users;

(3) Reuse and recycling of water for nonpotable, nonresidential applications;

(4) Management of system pressure to reduce usage;

(5) Retrofit programs;

(6) Efficiency in landscape design and irrigation techniques;

(7) Wastewater reclamation and recycling programs;

(8) Fixture replacement programs;

(9) ***Water and wastewater pricing structures that encourage improved efficiency****;*

(10) Rebates and other financial incentives;

(11) An education program for users designed to promote increased efficiency and conservation; and

(12) Promotion or adoption of local water-use ordinances that encourage water conservation."

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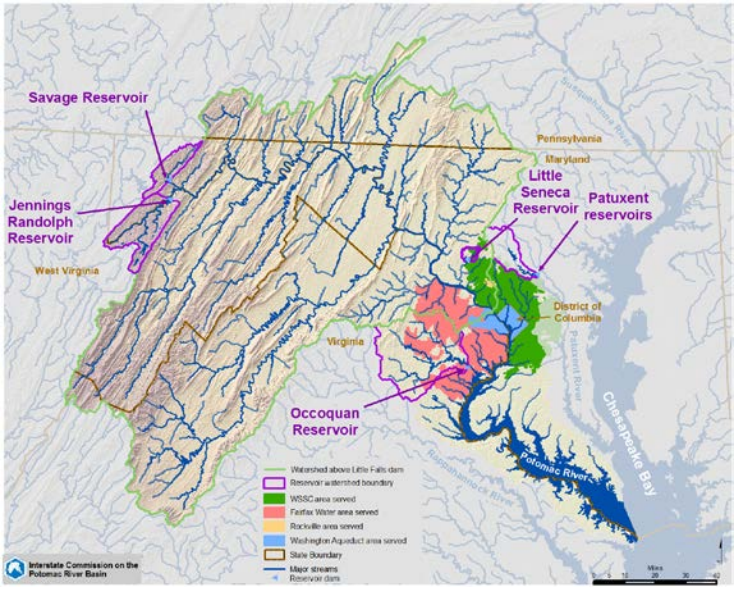
MDE Water Conservation Regulatory Guidance

- Conservation Planning Elements:
  - Accurate Metering
  - Water Accounting & Loss Control
  - Pricing
  - Information & Public Education

- WSSC's existing Water Appropriation & Use Permits require:
  - Water Conservation.
  - Minimum flow-by for Patuxent & Potomac Rivers.

1978 Potomac Low Flow Allocation Agreement

- Signed by Secretary of the Army, Maryland, Virginia, DC, Fairfax Water, and WSSC in 1978.
- Established allocation formula in the event of emergency shortages during times of drought.
- Established minimum “flow-by” for Potomac River of 100 million gallons per day at the Little Falls Dam.
- Agreement established demand management framework for continued use of the Potomac.



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1978 Potomac Low Flow Allocation Agreement

"Any formula…shall allocate water on a fair and equitable basis and shall take into consideration

a) steps taken by parties which can do so to minimize dependence upon the Potomac River during periods of low flow,

b) the nature and effectiveness of water conservation methods put into effect,

c) steps taken to increase the water supply available for the Washington Metropolitan Area,

d) then current population growth and planning for future growth,

e) feasibility and availability of new sources of water,

f) technological advances in water treatment and water quality measurement,

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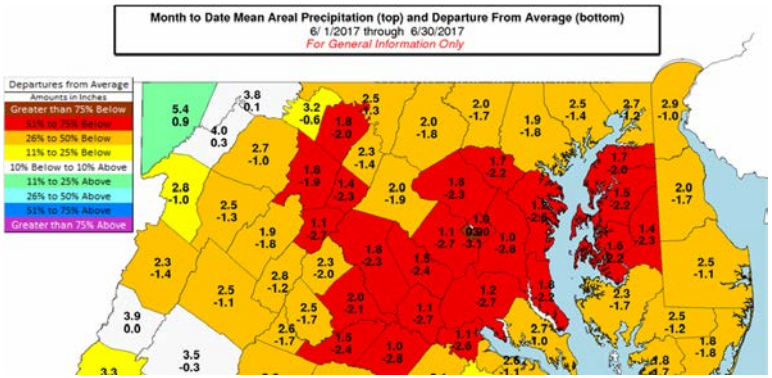
1982 Water Supply Coordinating Agreement

- Agreement between WSSC, Corps of Engineers, Washington Aqueduct, DCWater, Fairfax County Water Authority, and ICPRB to cooperatively manage their use of the Potomac River.
- Established operating rules and procedures to reduce the impact of severe droughts in the Potomac River basin, which supplies 78% of the water the Washington metro region.
- Formalized demand management requirements for regional water suppliers.

ICPRB CO-OP

- “The Section for Cooperative Water Supply Operations on the Potomac”.
- Conduct periodic reviews of the adequacy of the regional supply.
- Provides water supply outlooks and real-time drought monitoring for regional suppliers.
- Provides streamflow assessments to support reservoir release schedules.



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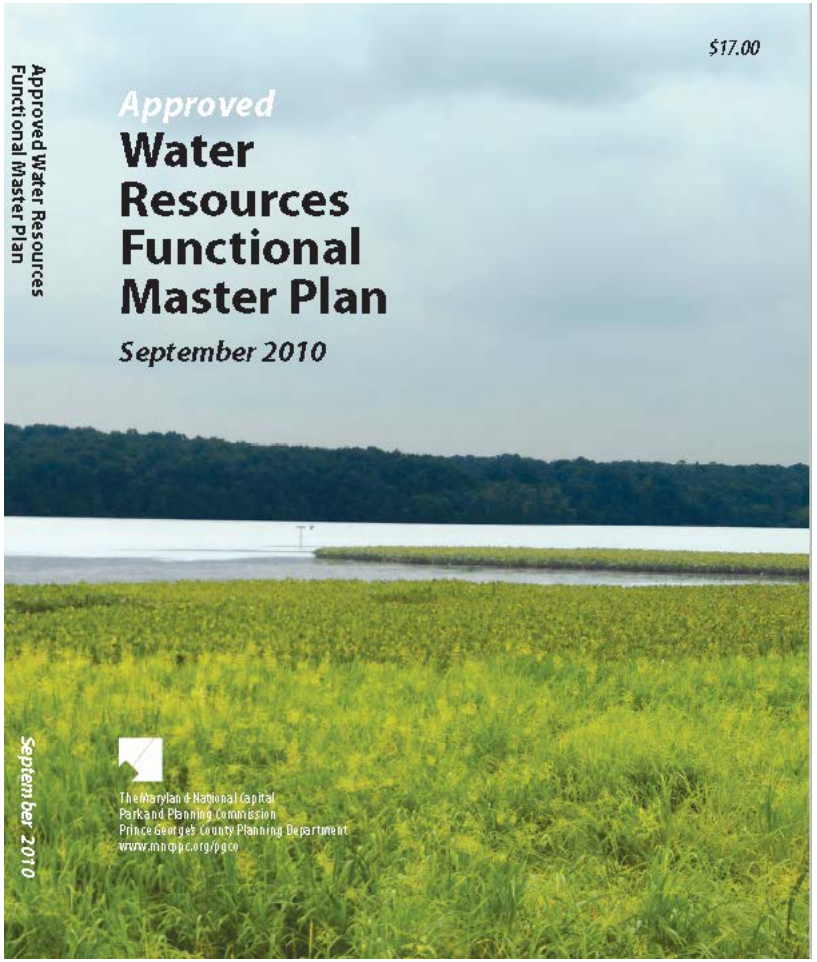
Regional Planning Implications

- Counties are required under Maryland law to prepare comprehensive water & sewer plans.
- Plans ensure that water supplies and sewage treatment capacity are adequate to meet future demand.
- Water Resources Element (House Bill 1141) is a required element of the Comprehensive Master Planning process.
- Montgomery & Prince Georges County adopted plans incorporate water conservation as a key strategy in their water supply planning.



WSSC Facility Planning Estimates

- Average consumption for single family units has declined over the past 5 years.
- Water production is projected to increase to 208.7 million gallons per day by 2040, under the "High" Scenario.
- Current capacity is sufficient to meet this demand, assuming current trends in water usage do not change.
- Theoretical "no conservation" scenario shows a 17 MGD treatment deficit.

Table 2: DAC per Multi-Family Unit

Year	DAC/Unit all existing units	DAC/Unit units constructed after 1993
2010	148.4	146.8
2011	139.3	144.7
2012	135.9	144.0
2013	130.2	123.5
2014	128.0	123.3
2015	128.5	122.2

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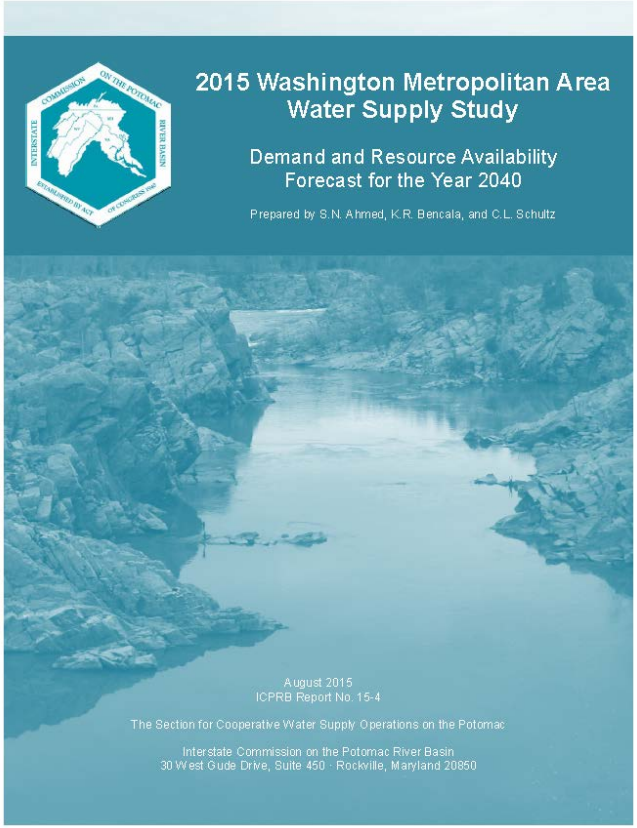
2015 Washington Metropolitan Area Water Supply Forecast for the Year 2040

- Population in the Washington Metropolitan Area (WMA) is projected to increase by 23%.
- Water projections assume a reduction in indoor household use by 25.3 gallons per day between 2015 and 2040.
- Projects need for mandatory restrictions and maximum use of storage to meet flow-by requirements by 2035 under historic drought conditions.
- Indicates that Climate Change impacts will introduce significant uncertainty into the long-range water supply outlook.



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Summary

- Water Conservation is integral to the management of the Potomac River.
- Water Conservation is assumed in demand projections used in county planning.
- Water Conservation is a regulatory mandate.
- Water Conservation is needed to ensure a viable long-term supply for region and to preserve the ecological health of Maryland's water resources.
- Pricing & Rate Structures can be effective tools to encourage & promote water conservation by WSSC's customers.