Maryland
Department of
the Environment

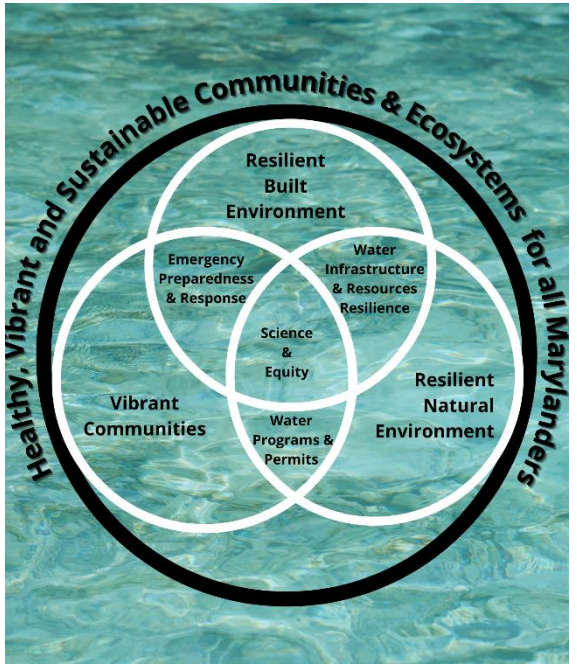
WSA/NPDES Climate Change Efforts

Association of Clean Water Administrators
2023 National NPDES Permitting Meeting

Presented By:
Jonathan Rice
Wednesday, March 1, 2023

WSA Climate Team

- Began in 2021
- Voluntary Staff Participation
- Contribution from all WSA Programs
- One-Year Terms
- ~10% Time Commitment
- Climate Adaptation Priority Areas
  - Leveraging Science & Planning
  - Water Programs, Policies, and Permits
  - Resilient Water Resources and Infrastructure
  - Emergency Response and Preparedness

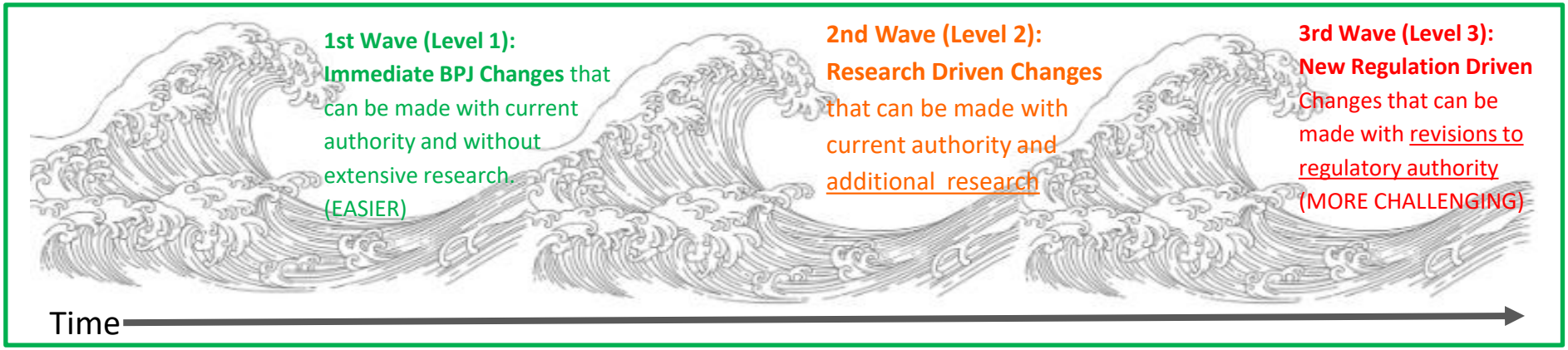


WSA Climate Team

- Climate Subteams
  - Communications
  - Drought Vulnerable Communities
  - Emergency Preparedness
  - Erosion and Sediment Control
  - Leadership & Accomplishments
  - Permits and Approvals
  - Dam Safety
- WSA Climate Change Webpage
  - https://mdewwp.page.link/WSAClimate

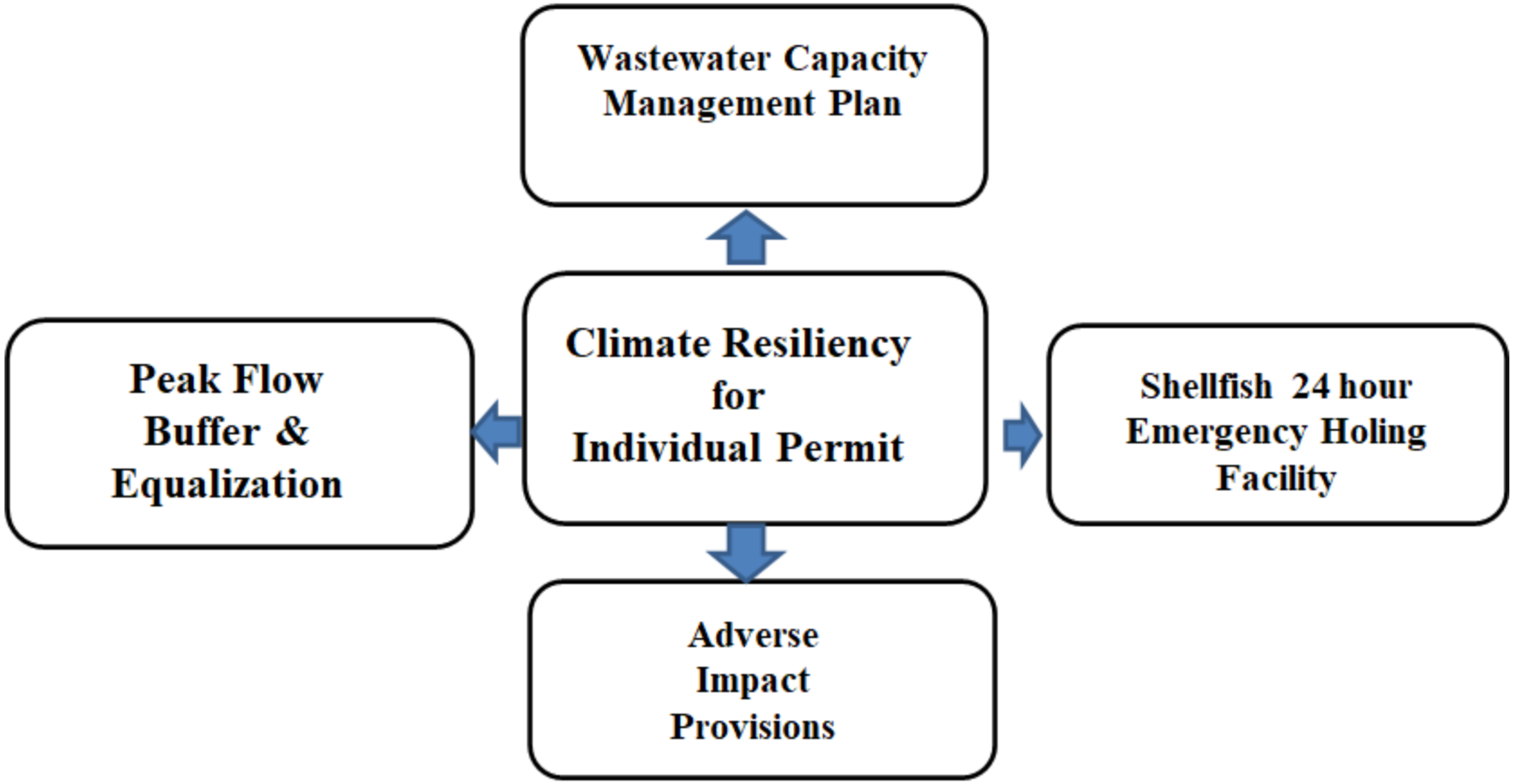
Permit/Approval Tracking Subteam

- Developed a spreadsheet identifying all permits and approvals offered by MDE/WSA
- Three-Level Approval Review Methodology



- Completed Level 1 Review on 7 General NPDES Permits and one category of individual NPDES Permits

Municipal Surface Permits Division



Municipal Surface Permits Division

- Permit conditions require Wastewater Capacity Management
  - Reports regarding flow capacity and Wastewater Capacity Management Plans due annually
- Beginning in late 2022, as permits renew, a condition regarding Climate Change Resiliency Requirements is being added
  - Requires evaluations (minimum of annually) to ensure adequate capacity for **peak** flow
  - Requires emergency power supplies and routine inspection/maintenance

Municipal Surface Permits Division

N. Climate Change Resiliency Requirements

The effects of climate change are projected to be more pronounced in the coming decades. As a result, the intensity and frequency of extreme weather events may quickly overload the wastewater facility hydraulically, disrupt the operation in the treatment works, and cause the potential endangerment of aquatic life and public health. The permittee shall enhance the climate change resiliency of the facility through the following measures:

1. Conduct regular evaluations, ***at a minimum frequency of once per year***, to ensure adequate peak flow equalization and wastewater treatment capacities are available in the treatment work to address the inflow surges during storm events. The permittee shall keep records of the evaluation reports and made them available to the Department upon request. See Special Condition II.C "Wastewater capacity Management" of the discharge permit for details, and

2. Acquire and install emergency power supplies at the facility and perform routine maintenance to ensure their readiness during extreme weather conditions. Please refer to General Conditions III.B.4 "Adverse Impact" and III.B.8 "Power Failure" of the discharge permit for further details.

No later than six months from the effective date of this permit, the permittee shall develop and submit a contingency plan to the Department and address the emergency power supply requirements cited in II.N.2 above.

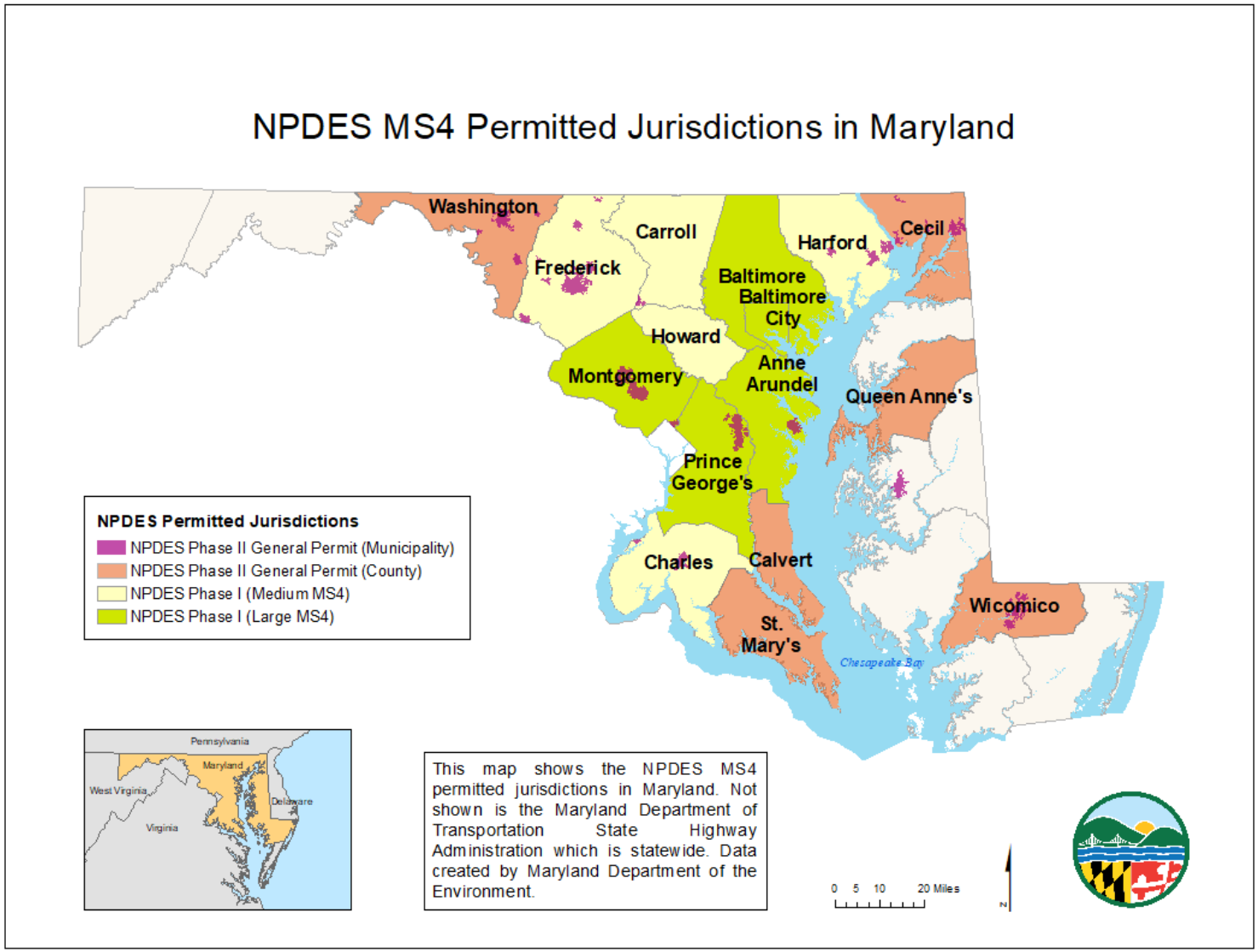
Stormwater General Permits

- Recently renewed or soon-to-be renewed general permits with stormwater components
  - Industrial Stormwater (20-SW, February 2023)
  - Construction Stormwater (20-CP, April 2023)
  - Surface Coal Mining (19-CM, January 2023)
  - Mineral Mines, etc. (22-MM, exp. Summer 2023)
  - Seafood Processors (21-SE, November 2022)
- Chesapeake Bay TMDL Restoration in 20-SW
  - 20% Reduction of Impervious Surface Area (originally implemented in 12-SW)

Stormwater General Permits

- Maryland models most stormwater permitting language after EPA MSGP.
- New language requires consideration of elevation for placement of structures
- SWPPP now required to address adapting operations to address climate change impacts
- Construction stormwater requires compliance with E&SC Handbook
- MDE SDSFM Program is coordinating updates to E&SC Handbook to address climate change

MS4 Permits


NPDES MS4 Permitted Jurisdictions in Maryland
Washington
Carroll
Harford
Cecil
Frederick
Baltimore
Baltimore City
Howard
Montgomery
Anne Arundel
Queen Anne's
Prince George's
Charles
Calvert
Wicomico
St. Mary's
Chesapeake Bay
NPDES Permitted Jurisdictions
NPDES Phase II General Permit (Municipality)
NPDES Phase II General Permit (County)
NPDES Phase I (Medium MS4)
NPDES Phase I (Large MS4)
Pennsylvania
Maryland
West Virginia
Virginia
Delaware
This map shows the NPDES MS4 permitted jurisdictions in Maryland. Not shown is the Maryland Department of Transportation State Highway Administration which is statewide. Data created by Maryland Department of the Environment.
0 5 10 20 Miles
N

MS4 Permits

- Chesapeake Bay Restoration
  - Strong support to protect the Bay allows for progressive MS4 Permits
  - 11 Phase I MS4s
  - Over 33,000 acres restored, ~ $727M spend over the past four permit terms
- Increased the amount of available restoration credits for water managed by 11% to incentivize additional controls
- Added requirement to inspect stability and capacity of conveyance systems, not just treatment systems

Stormwater Mgmt. Challenges

Increase in short duration, high intensity storms

Event Date	Location	Total Precipitation and Storm Duration
September 10, 2020	College Park	**4.5 inches in 2.5 hours**
August 21, 2018	Forestville	**3.18 inches in 1.0 hours**
September 29, 2016	Salisbury	7.41 inches overnight
September 29, 2016	Snow Hill	9 inches overnight
July 30, 2016	Ellicott City	**5.96 inches in 2 hours**
August 13, 2014	Queenstown	9.92 inches in 24 hours
August 13, 2014	Dundalk	8.75 inches in 24 hours
August 13, 2014	Linthicum	8.03 inches in 24 hours
June 13, 2014	Clear Spring	**5 inches in 2 hours**

Annual rainfall in Chesapeake Bay watershed projected to increase 6.5% by 2055

Stormwater Mgmt. Challenges

- While regulations for new development controls are generally sufficient, infrastructure for many jurisdictions are becoming outdated
  - Undersized culverts, clogged or broken channels
  - Lack of information and data about current systems
- Stormwater/E&SC requirements primarily managed by local jurisdictions, subject to State minimum
  - Inconsistent between jurisdictions
  - Watersheds overlap multiple jurisdictions

Advancing Stormwater Resiliency

- What we need
  - System or tool to promote coordination across jurisdictions and government levels
  - Increased outreach and training
- Considerations (some in Progress)
  - Updating historical basis for sizing of SW controls (currently ‘60s data)
  - Evaluating controls to account for short duration, high intensity storms versus annual totals on location-specific basis
  - Factor in future climate change projections into determination of floodplain boundaries
- As new requirements for management of stormwater are developed, E&SC updates will follow

Chemical Additives Policy

- In 2019, Maryland created a policy for the use of chemical additives for sediment control (flocculants)
- https://mdewwp.page.link/MDFlocs
- “Standards for Use” require documentation of additive usage in PPP and outlines requirements to submit request for MDE approval
- All flocculant use must be approved as part of an NPDES permit or GP registration

Chemical Additives Policy

- “Procedures for Review” specify the method used by MDE to determine maximum additive rates based on ecotoxicity
- Streamlined approval process for Preapproved List
- Additional scrutiny for cationic polymers

Questions???

Jonathan Rice, Chief
Industrial and General Permits Division
Wastewater Pollution Prevention and Reclamation Program
Water and Science Administration

Jonathan.Rice@maryland.gov
(410) 537-3859