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Adaptation and Resilience Planning and Regulation for Water Resources in New York

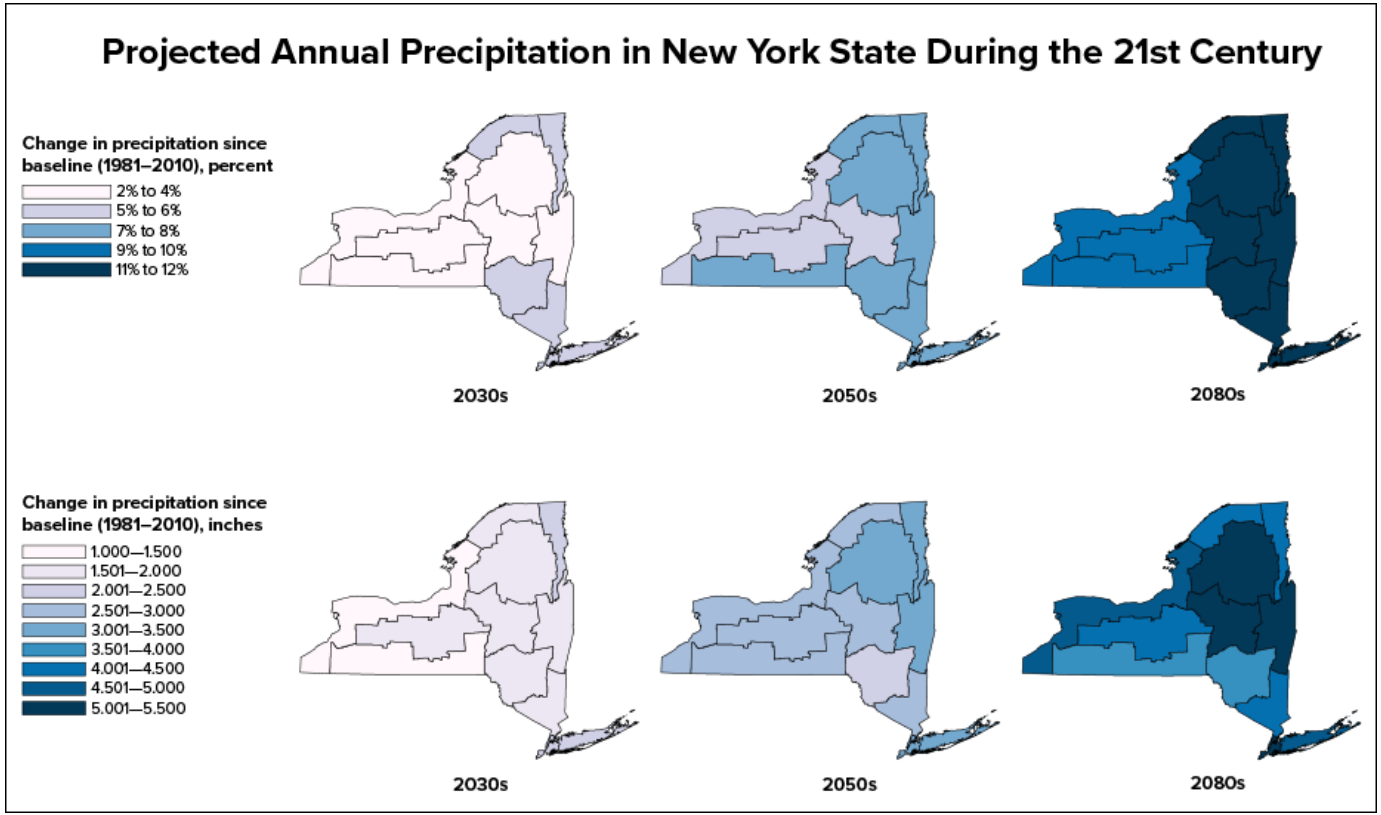
Mark Lowery, Assistant Director, Office of Climate Change

Delaware River Basin Commission
Advisory Committee on Climate Change
September 11, 2024

Observed and Projected Climate Change in NYS

New York State Climate Impacts Assessment

Average Annual Precipitation



NEW YORK STATE CLIMATE IMPACTS ASSESSMENT

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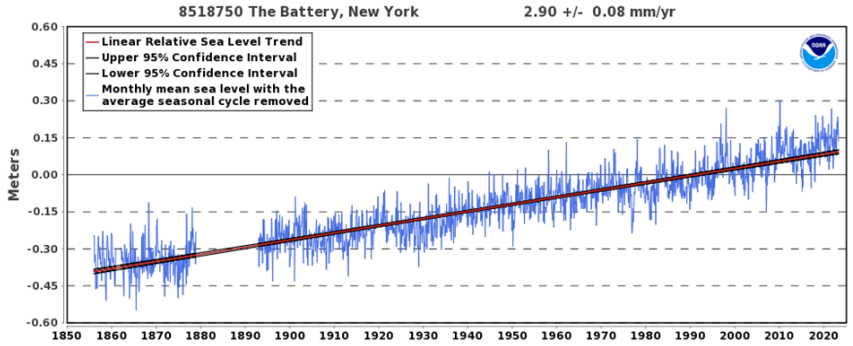
Extreme Precipitation – NYS Southern Tier

2050s	Baseline	10th	50th	90th
Days over 1 inch precipitation	8	8	9	10
Days over 2 inches precipitation	0.8	1	1	2
Days over 4 inches precipitation	0	0	0	0.1

2080s	Baseline	10th	50th	90th
Days over 1 inch precipitation	8	8	10	12
Days over 2 inches precipitation	0.8	1	1	2
Days over 4 inches precipitation	0	0	0.1	0.1

Sea Level Rise



	New York City/Lower Hudson					
	Low	Low-medium	Medium	High-medium	High	Rapid Ice Melt
2030s	6	7	9	11	13	NA
2050s	12	14	16	19	23	NA
2080s	21	25	30	39	45	83
2100	25	30	36	50	65	114
2150	38	47	59	89	177	NA

6 NYCRR Part 490, Projected Sea Level Rise

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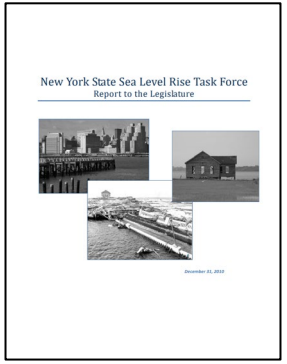
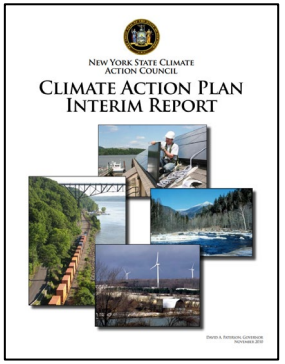
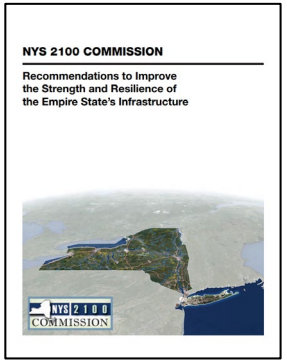
Past Climate NYS Adaptation "Planning"

- State Sea Level Rise Task Force (2010)
- Climate Action Council Interim Report (2010)
- NYS 2100 Report (2013)
- CLCPA Scoping Plan (2022)







- Recommendations for state actions, rather than action plans
- (cf. NYS Extreme Heat Action Plan)

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CLCPA Scoping Plan Adaptation and Resilience Themes

- Building Capacity
- Communities and Infrastructure
- Living Systems

Building Capacity

- Commit to creating, implementing and updating a comprehensive and equitable state climate change adaptation and resilience plan. (AR1)
- Incorporate equitable adaptation and risk-reduction considerations into relevant state funding and regulatory programs, projects and policies. (AR2)
- Strengthen meaningful community engagement and public education, and build adaptive capacity across all sectors. (AR3)
- Identify and evaluate options for supporting equitable adaptation and resilience practices and projects, and to enhance insurance protection. (AR4)

Significant investments in resilient infrastructure will be required to adapt to a changing climate.

Communities and Infrastructure

- Provide state agency planning and technical support for equitable regional and local adaptation and resilience plans and projects. (AR5)
- Evaluate opportunities to ensure equitable consideration of future climate conditions in land-use planning and environmental reviews. (AR6)
- Develop policies, programs, and decision support tools to reduce risks associated with coastal and inland flooding. (AR7)
- Develop policies and programs to reduce human risks associated with new patterns of thermal extremes. (AR8)
- Ensure the reliability, resilience and safety of a decarbonized energy system. (AR9)

Local governments can have substantial impact on local resilience and adaptive land use through their comprehensive plans and zoning.

Living Systems

> Develop policies and programs to reduce risks threatening ecosystems and biodiversity. (AR10)

> Enhance climate resilience and adaptive capacity of agricultural community, while preparing to take advantage of emerging opportunities. (AR11)

> Preserve and protect the ability of forest ecosystems to sequester carbon. (AR12)

To keep every cog and wheel is the first precaution of intelligent tinkering.
-Aldo Leopold

Community Risk and Resiliency Act (2014)

- Requires consideration of climate change by applicants for major permits and in DEC facility-siting regulations
- Authorizes DEC to require mitigation of significant climate risks to any natural resource, public infrastructure or services, disadvantaged communities, or private property not owned by the applicant
- Requires guidance on implementation (DEC, DOS; released 2020)
- Requires guidance on use of natural resilience measures to reduce risk (DEC, DOS; released 2020)
- Requires sea-level rise projections (DEC; adopted 2017, updated 2024)
- Requires model local laws to increase resilience (DOS,DEC; released 2019)
- Requires applicants demonstrate consideration of sea-level rise, storm surge and flooding in specified funding programs
- Adds mitigation of sea-level rise, storm surge and flooding to Smart Growth Public Infrastructure Policy Act criteria (guidance released 2020)

http://www.dec.ny.gov/energy/102559.html

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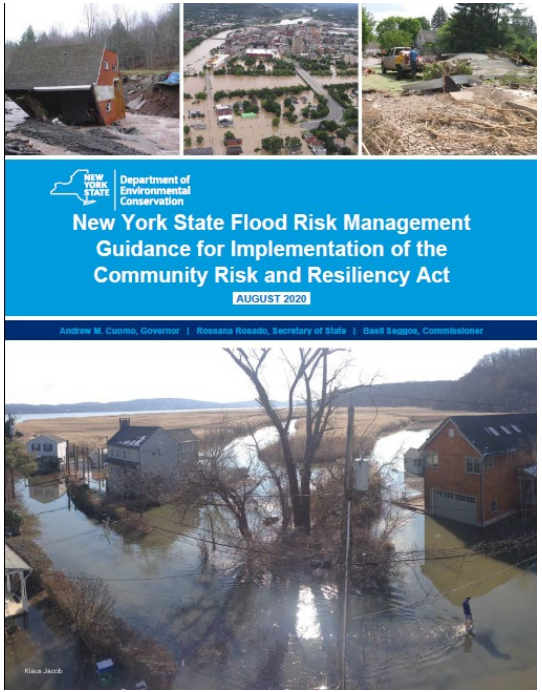
State Flood Risk Management Guidance

- Non-binding technical guidance to agencies.
- Guideline design elevations by structure type, tidal/nontidal.
- Available for incorporation into
  - CRRA topical guidance and CRRA program-specific guidance, regulations, etc.,
  - programs not covered by CRRA.



CRRA Flood Risk Management Guidance (ny.gov)

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General Flood-risk Management Guidelines

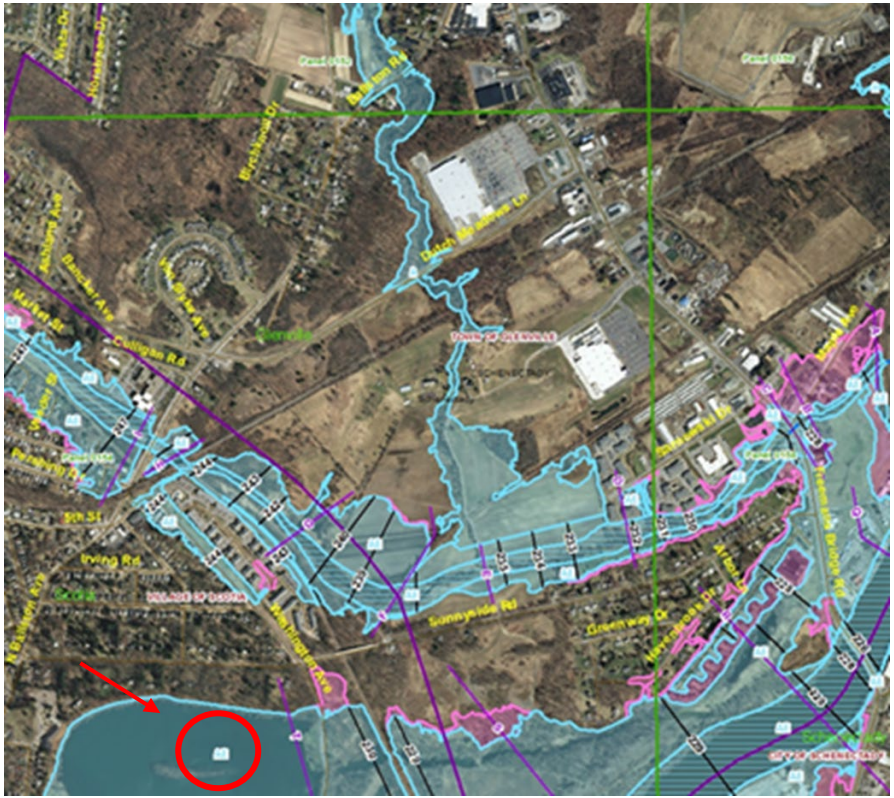
- The vertical flood elevation and corresponding horizontal floodplain associated with the 0.2-percent annual chance flood.

- The vertical flood elevation and corresponding horizontal floodplain that result from adding two feet (three feet for critical facilities) of freeboard to the base flood elevation and extending this level to its intersection with the ground.

- The vertical flood elevation and corresponding horizontal floodplain determined by a climate-informed science approach in which adequate, actionable science is available.

Video: New York's Comprehensive State and Local Climate Resilience Program

0.2% Annual Chance Flood



The vertical flood elevation and corresponding horizontal floodplain associated with the 0.2-percent annual chance flood (shown in pink here).

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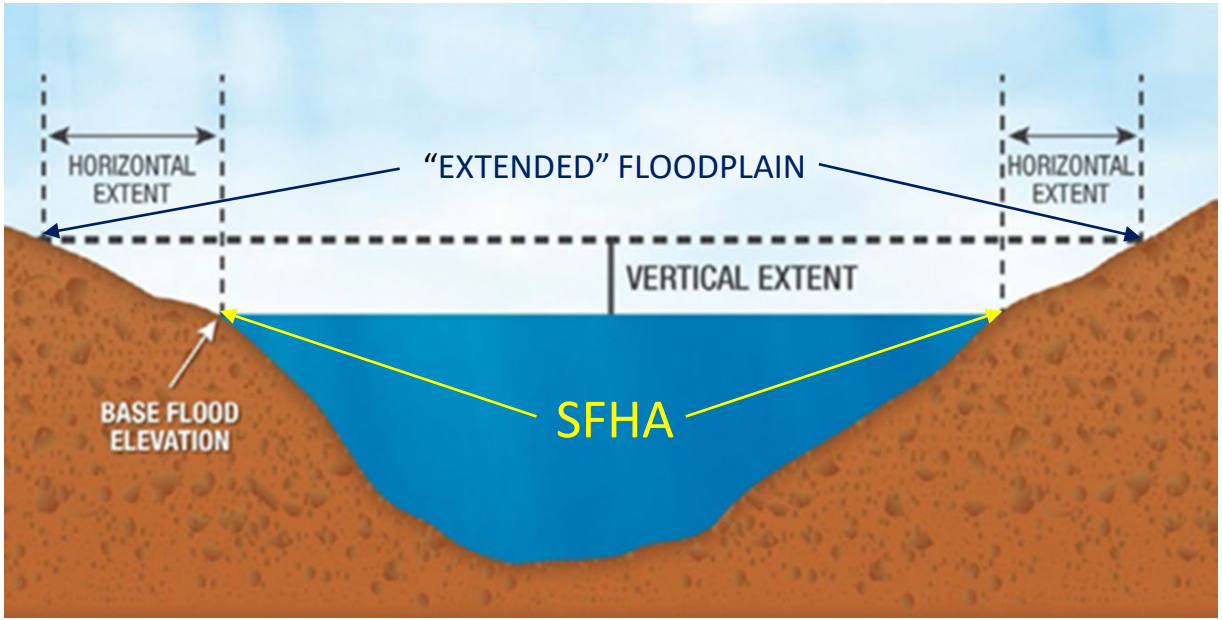
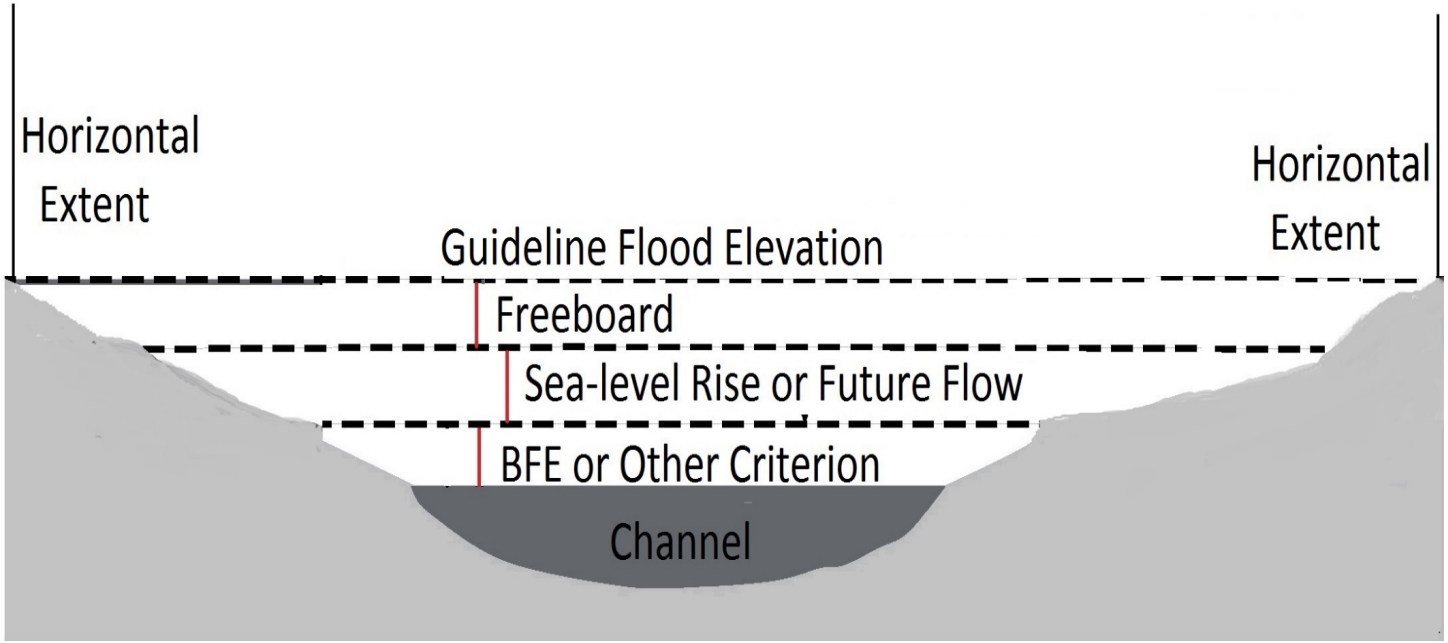
BFE + Freeboard, Horizontally Extended



The elevation and horizontal flood hazard area resulting from adding an additional 2 ft. to the base flood elevation (BFE + 3 ft. for critical facilities), and extending this elevation to its intersection with the ground

Climate-informed Science Flood-risk Management Guideline



Tidal Areas

- Apply specified Part 490 projection

Nontidal areas

- Apply regional design-flow multipliers

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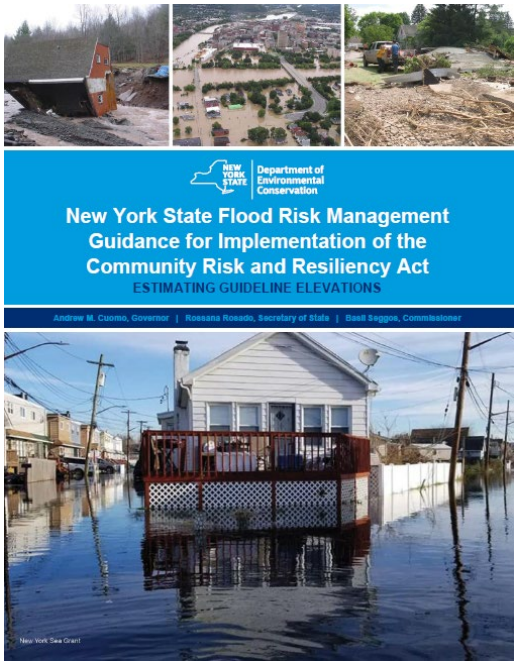
Estimating Guideline Elevations

- Step-by-step methods to estimate site and structure specific guideline elevations.
- Available online resources include sea-level rise mappers,
- Environmental Resource Mapper (DEC).



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CRRA Implementation to Date

- DOS Model Local Laws to Increase Resilience
- Statewide General Permits for
  - Stream Activities
  - Concentrated Animal Feeding Operations
  - Stormwater Discharge (supplemental form)
  - Multi-Sector Industrial SPDES
  - Construction Activity (draft)
- Asset Management Guide for Publicly Owned Treatment Works
- Mined Land Reclamation Permit (supplemental form)
- Water Pollution Control Revolving Fund standards
- Water Quality Improvement Program grant climate-focused projects and scoring
- Resilient NY Stream studies and associated community support

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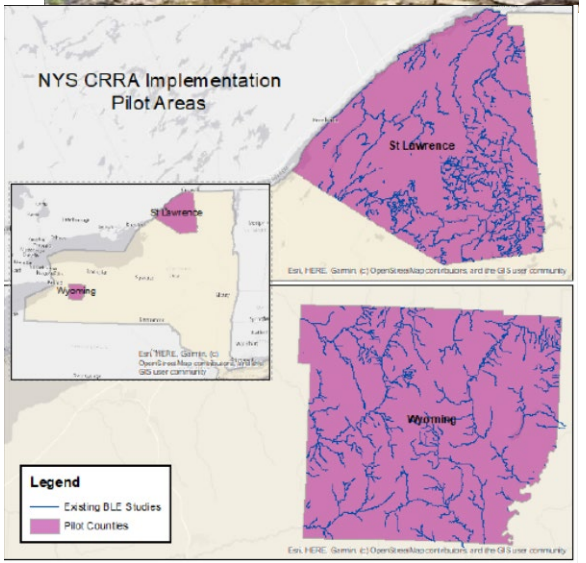
Work in Progress or Planned

- Culvert and bridge technical guidance (draft)
- Pilot evaluation of potential floodplain designations (Dewberry)
- Pilot evaluation of watershed-based future flow projections (Dewberry)
- Long Island groundwater study
- Hudson River salt front study
- Drought early warning tool (Cornell)
- Stormwater projections (Cornell)



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Climate Change Adaptation and Resilience Plan

- 2024 SOTS directive
- DEC, NYSERDA, DOS to lead
- $3M allocation to support
- 2-phase approach

CCARP Governance (tentative)

Executive Committee
DEC: Deputy Commissioner, OCC Director, Chief Resiliency Officer
NYSERDA: Chief Program Officer, Vice President
DOS: Deputy Secretary

Staff Steering Committee
DEC: OCC Assistant Director
NYSERDA: Resilience Lead
DOS: Director Planning, Development and Community Infrastructure

Core Agency Phase 1 Work Group

AGM	DHSES	DFS	DOH
DOT	HCR	DOB	OPHRP
OGS	NYPA/Canals		

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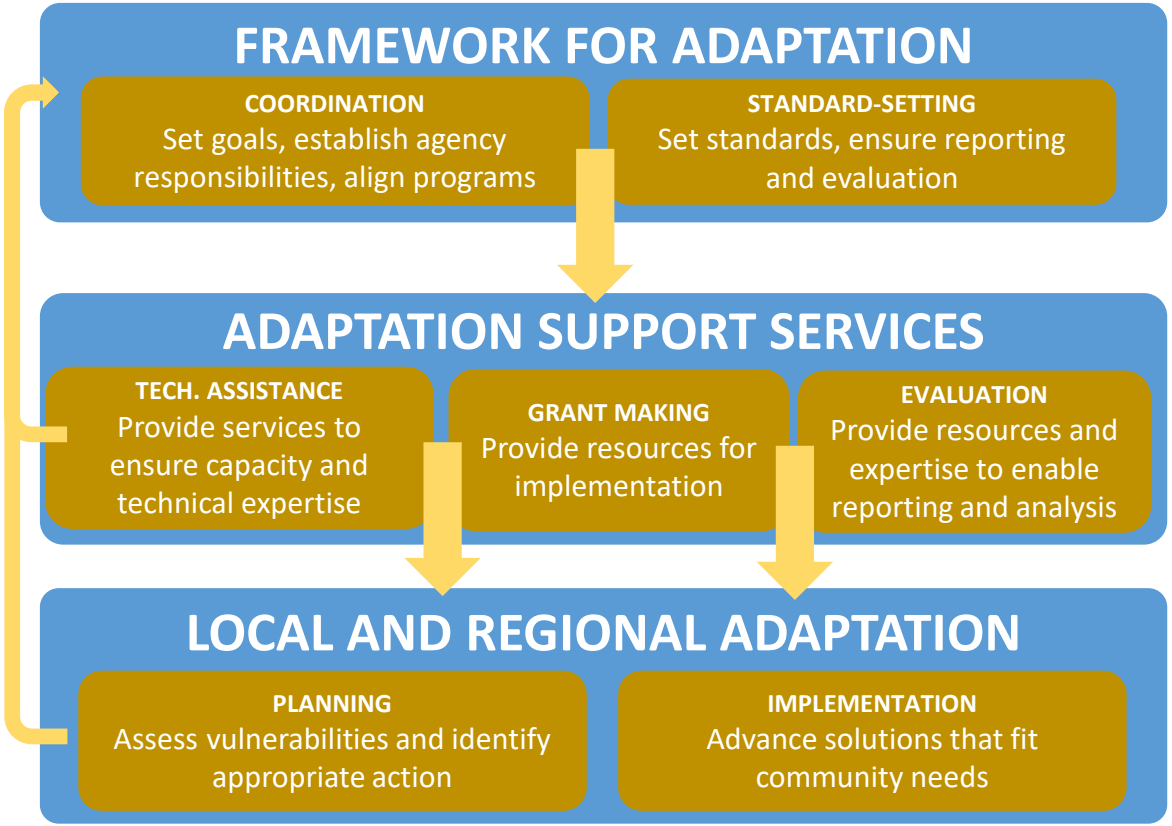
Unifying Existing Efforts

Example: California

- **Conclusions/Recommendations for NYS:**
  - Approach reduces duplication and builds on existing efforts
  - Can result in expedited process to identify existing state plans and programs, and regional and local plans
  - Can identify statewide gaps in adaptation programs and sector- or hazard-specific, or place-based plans as needed.




EU Framework: Supporting Local Adaptation



Premise: Adaptation should be advanced locally and regionally, with government ensuring scaled progress by providing standards and support services.

Goal: The framework coordinates decision-making, establishes standards, and creates support mechanisms for localities to adapt at scale.

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Tentative Planning Approach

First Phase

- Establish vision, principles, organizational model, and adaptation planning framework
- Analyze existing planning and implementation to identify gaps
- Consult with external advisory panel (experts and community representatives)

Second Phase

- Undertake planning and implementation actions based on Phase 1 gap analysis
- Develop separate regional, sector or hazard-specific plans in modular organizational model
- Follow a collaborative process
- Conduct additional, topic-specific stakeholder engagement as needed
- Develop decision-support tools (e.g., adaptation portal)

Thank You

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Connect with us:

- DEC: www.dec.ny.gov
- Community Risk and Resiliency Act: www.dec.ny.gov/energy/102559.html
- Climate Smart Communities: www.dec.ny.gov/energy/76483.html
- Facebook: www.facebook.com/NYSDEC
- Twitter: twitter.com/NYSDEC
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