



# Maryland Adaptation and Response Working Group

Meeting #3 – October 1, 2007

Maryland Department of Natural Resources

Maryland Department of Planning

The Center for Climate Strategies

# Welcome and Introductions

- Maryland Department of Natural Resources
- Maryland Department of Planning
- Maryland Adaptation and Response Working Group (ARWG) Members
- Members of the Public
- Center for Climate Strategies

# Agenda

- Welcome & Introductions
- Presentation from the Science & Technical Working Group on Climate Impacts Facing Maryland  
– *Dr. Don Boesch, UMD-CES*
- ARWG TWGs, Process, and Schedule
- Draft Maryland Synthesis Report
- Draft Catalog of State Adaptation Options
- TWG Break-Out Sessions to Consider Catalog and Interim Report Recommendation
- Next Steps, Public Input, and Announcements
- Agenda, Time & Date for Next Meeting; Future Dates

# ARWG TWGs, Facilitators

| ARWG<br>Technical Work Groups (TWGs)   | Faciliator             |
|--|------------------------|
| <i>Existing</i> Built Environment and Infrastructure                         | TBD (plus Kirstin Dow) |
| <i>Future</i> Growth and Development in Built Environment and Infrastructure | Kirstin Dow            |
| Human Health, Safety, and Welfare  | Kris Ebie              |
| Natural Resources and Resource-Based Industries                              | Amy Luers              |

# ARWG Stepwise Planning Process

1. **Prepare Synthesis Report** - **Ongoing**
2. **Identify a full range of possible actions** - **Oct. 1, 19**  
*Next MCCC meeting* - **Oct. 17**
3. Identify initial priority options for analysis  
(including 4-5 solid fast-track policy options) - Nov. 2  
*Interim Report to MCCC for approval* - **Nov. 14**
4. Develop straw proposals for priority options - Dec. 7
5. Analyze effectiveness -
6. Evaluate feasibility issues - Jan. 11
7. Develop alternatives to address barriers - Feb. 8
8. Aggregate results - Mar. 7
9. Iterate to final agreements -
10. Finalize and report recommendations - Apr. 11

# Draft Maryland Synthesis Report: *Maryland Vulnerable Sector Inventory and Adaptation Baseline*

- Introduction
- Climate Information
- Coastal Infrastructure and Resources
- Human Health
- Natural Resources and Aquatic Ecosystems
- Agriculture and Forestry
- Adaptation Metrics
- References and Appendices

# Full Range of Possible Actions: Catalog of State Adaptation Options

- Focus on sea level rise and associated impacts
- Actions undertaken or considered by a variety of US states (and elsewhere)
  - Broad array of sectors, issues
  - Broad array of implementation mechanisms
- Starting place for the ARWG to identify priority options for further consideration

# Key Initial Steps

- Option identification
  - Develop “catalog” of adaptation policy options
- Initial Screening
  - Conduct initial screening of adaptation options using qualitative evaluation metrics
- Prioritization
  - Select adaptation options for further analysis using targeted evaluation metrics

# Suggested Qualitative Metrics

- Capital Intensity
  - What are the costs of the measure?
- Flexibility
  - How readily can the measure accommodate future corrective actions?
- Adaptive Capacity
  - What is the degree of climate risk reduction achieved?

# Example of Initial Screening Using Suggested Qualitative Metrics

| Option No. | Adaptation Policy Option   | Flexibility | Capital Intensity | Adaptive Capacity | Option Prioritization | Level of Consensus | Notes |
|------------|--|-------------|-------------------|-------------------|-----------------------|--------------------|-------|
| 1          | <b>(Managed) Retreat</b>   |             |                   |                   |                       |                    |       |
| 1.1        | Site industrial systems away from areas vulnerable to changes in weather conditions                            |             |                   |                   |                       |                    |       |
| 1.2        | New building codes, design standards including setback zones and phased-out or no development in exposed areas |             |                   |                   |                       |                    |       |
| 1.3        | Relocation of threatened structures  |             |                   |                   |                       |                    |       |
| 1.4        | Creating upland buffers  |             |                   |                   |                       |                    |       |

Source:  
UKCIP

# Categories of Options: Existing Built Environment and Infrastructure

- (Managed) Retreat
- Protection
- Accommodation

# Categories of Options: Future Growth and Development in Built Environment and Infrastructure

- (Managed) Retreat
- Protection
- Accommodation

# Categories of Human Health & Public Safety Options

- Disease Prevention: Vector-borne diseases, Water-borne diseases
- Acclimatization, resilience to thermal extremes
- Mitigate mortality and morbidity from extreme weather events

# Categories of Options: Human Health, Safety and Welfare

- Disease Prevention
- Acclimatization
- Mitigate Mortality and Morbidity from Extreme Weather Events

# Categories of Options: Natural Resources and Resource-Based Industries

- Agricultural Industries
- Terrestrial Resources
- Water Resources
- Marine Ecosystems

# Catalog of State Adaptation Options

- TWGs encouraged to add additional options
  - Maryland breaking new ground
  - Will set the standard
- After ARWG approval of catalog (based on comprehensive set of options), TWGs will screen options & recommend priorities for further analysis

# Break

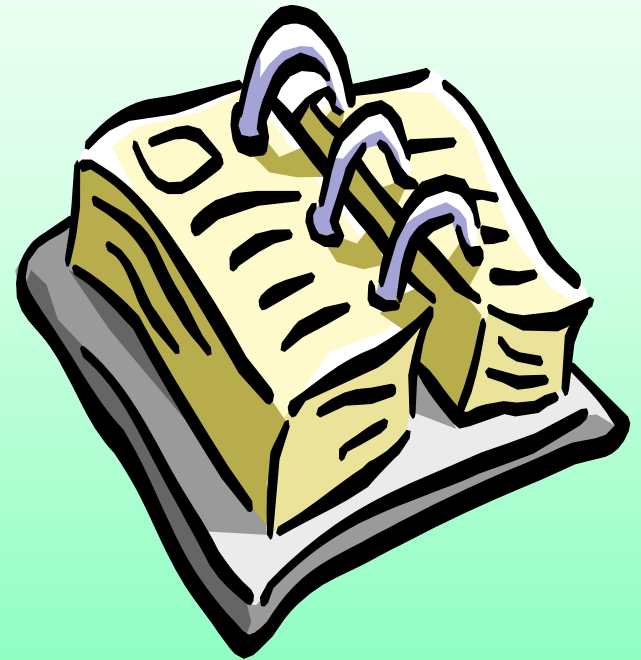


# Next Steps

- Break-Out TWG Meetings Today
- TWG Teleconference Meetings
  - Review and expand catalog for ARWG approval
  - Prepare to recommend initial priorities
  - Interim Report Recommendations

# Next ARWG Meeting

- Date, Time and Location:
  - October 19, 2007
  - Time
  - Location TBD
- Agenda:
  - Add missing actions to catalog
  - Prepare to identify initial priorities for analysis
  - Consider recommendations for Interim Report



# Public Input, Announcements

# Identification of Adaptation Options

- CCS to develop initial catalog with DNR/DOP
  - Disaggregated by vulnerable sectors
- Catalog premised on key questions:
  - Adaptation to what?
  - What are current and future climate risks?
  - Who is vulnerable and needs to adapt?
  - When should options/policies be implemented?
  - What is scale for intervention?

# Key Issues/Questions Underlying Initial Screening

- Exposure intensity (magnitude of event/risk)?
- Technically feasible?
- Economically possible?
- Level of uncertainty/severity regarding impacts?
- Institutional support and capacity available?
- Compatible with current policies?
- Regional issues?

# Example of Initial Screening Using Qualitative Metrics

| Theoretical Range of Choice               | Technically feasibility demonstrated?  | Economically feasible? | Socially and Legally Acceptable? | Effective to address health outcome? | Closed /Open (Practical Range of Choice) |
|---|--|------------------------|----------------------------------|--------------------------------------|--|
| Land use planning to reduce risk exposure | Yes at County and District levels only | Yes                    | Yes                              | Yes                                  | Open                                     |
| Engineering works to reduce risk exposure | Yes                                    | Yes                    | Yes                              | Yes                                  | Open                                     |
| Insurance                                 | Generally not available                |                        |                                  |                                      | Closed                                   |
| Emergency relief                          | Yes                                    | Yes                    | Yes                              | Yes                                  | Open                                     |

Source:  
UKCIP

# Example Using Qualitative Metrics – Antigua Tourism

| <b>Adaptation Measures</b>                        | <b>High Priority</b> | <b>Target of Opportunity</b> | <b>Effectiveness</b> | <b>Other Benefits</b> | <b>Low Cost</b> | <b>Low Barriers</b> | <b>Impact on Other Sectors</b> |
|---|----------------------|------------------------------|----------------------|-----------------------|-----------------|---------------------|--------------------------------|
| <i>Hazard Mapping</i>                             | Yes                  | No                           | Yes                  | Yes                   | Yes             | Yes                 | Positive                       |
| <i>Flood Control</i>                              | Yes                  | No                           | Yes                  | Yes                   | Yes             | Yes                 | Positive                       |
| Land Use Controls & Enforcement                   | Yes                  | Yes                          | Yes                  | Yes                   | No              | No                  | Positive                       |
| Codes & material specification                    | Yes                  | No                           | Yes                  | Yes                   | Yes             | No                  | Positive                       |
| Retrofitting (old building)                       | Yes                  | No                           | Yes                  | Yes                   | No              | Yes                 | Neutral                        |
| Institutional Strengthening                       | Yes                  | Yes                          | Yes                  | Yes                   | No              | No                  | Positive                       |
| Forecasting & early warning                       | Yes                  | Yes                          | Yes                  | No                    | No              | Yes                 | Positive                       |
| <i>Public Education &amp; Awareness Programme</i> | Yes                  | Yes                          | Yes                  | Yes                   | No              | Yes                 | Positive                       |

Source:  
UNEP