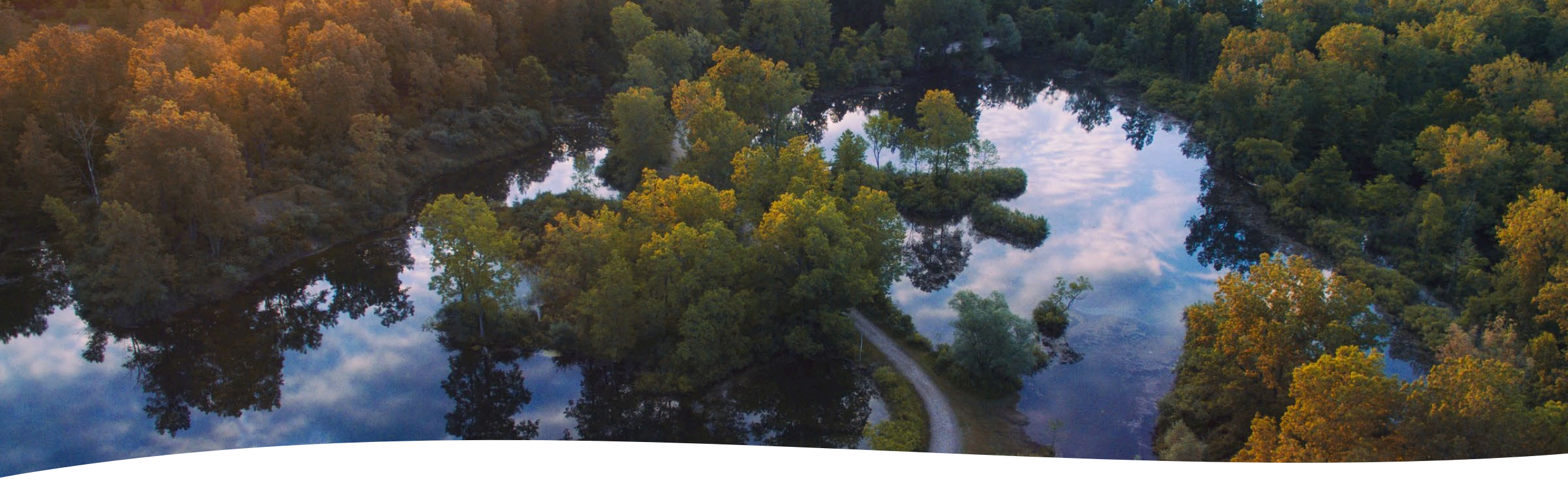

Welcome! The webinar will start soon.

International Joint Commission
Great Lakes Science Advisory Board-Research Coordination Committee

Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

Webinar Presentation

May 24, 2022

Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

WEBINAR AGENDA

- Presentation (30 minutes)
- Q&A (~30 minutes)

ABOUT THE SCIENCE ADVISORY BOARD RESEARCH COORDINATION COMMITTEE

- Great Lakes Water Quality Agreement

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- SAB: Advises the IJC and IJC Water Quality Board on research and science

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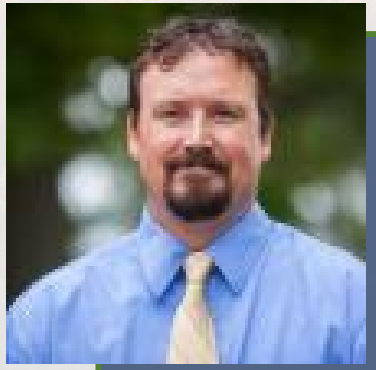
- Great Lakes Water Quality Agreement
- SAB: Advises the IJC and IJC Water Quality Board on research and science
- RCC: Canadian and US government and nongovernment research managers

WEBINAR PANELISTS



Chris Winslow

SAB-RCC US Co-chair; Ohio Sea Grant

Gavin Christie

SAB-RCC Canadian Co-chair; DFO

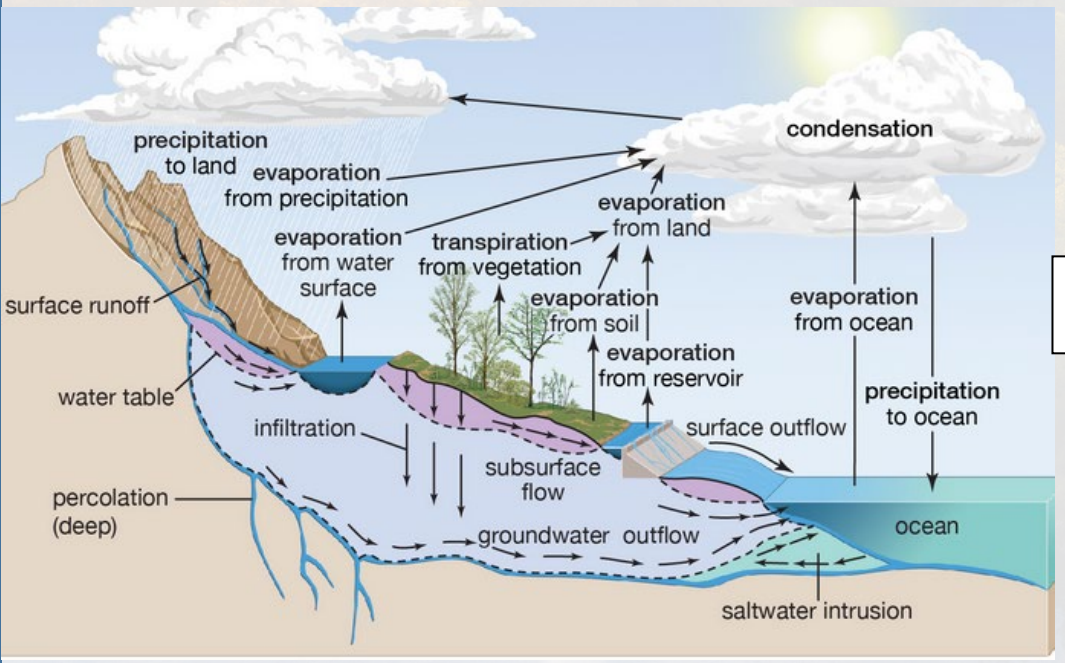
Sandra Eberts

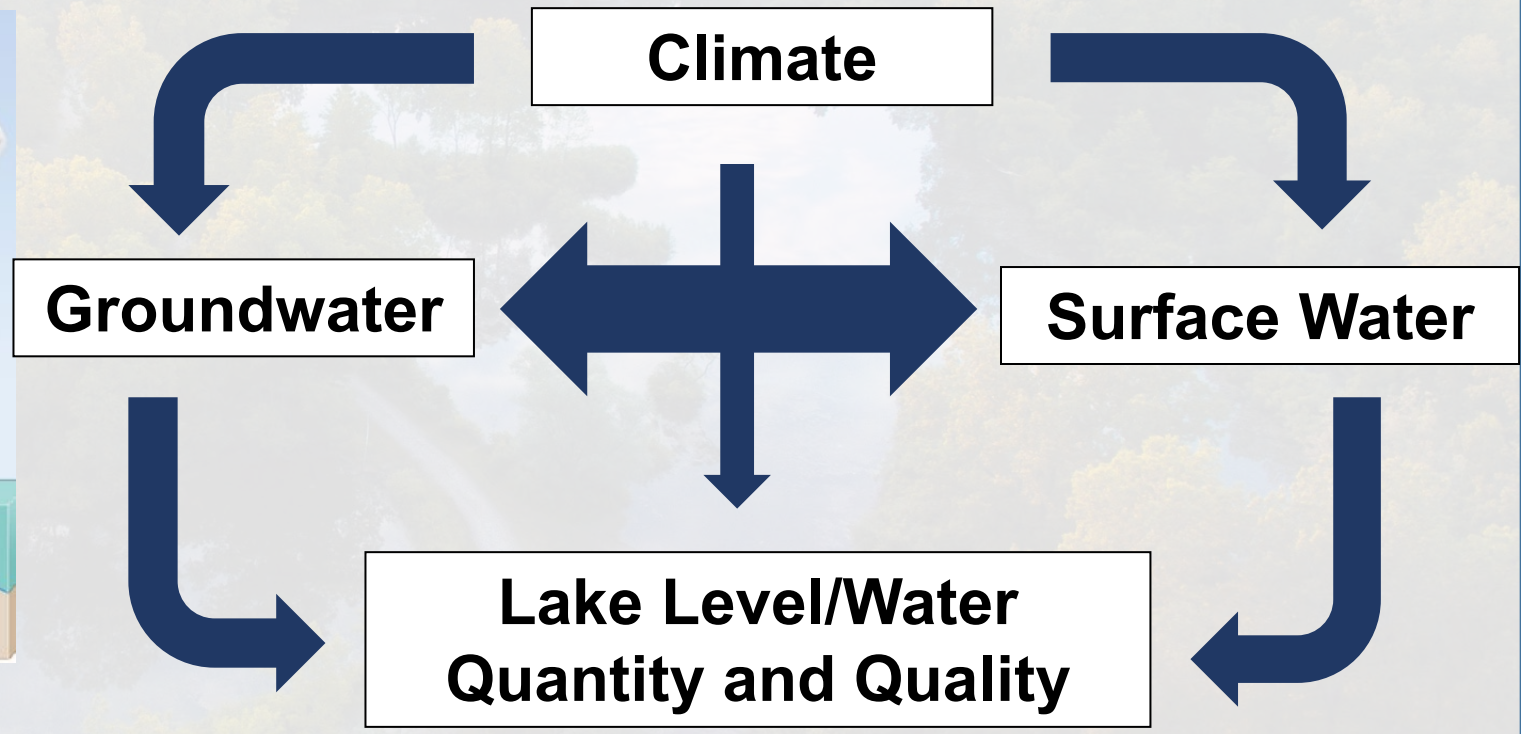
SAB-RCC work group lead; USGS

Réjean Couture

SAB-RCC work group lead; GSC

WHY A GROUNDWATER-SURFACE WATER STUDY?





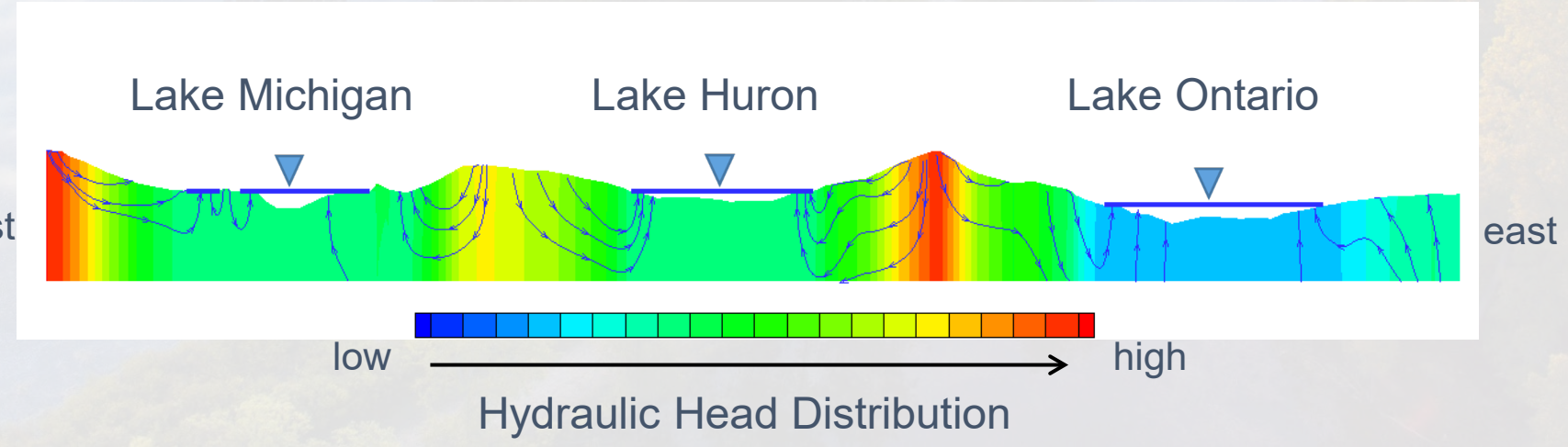
PROJECT TEAM

Consulting team
John Bratton, LimnoTech
Mary P. Trudeau, Envirings
René Drolet, René Drolet Consulting Services
Jim Nicholas, Nicholas-h2o
Pedro Restrepo, Consulting Engineering

Work group
Sandy Eberts, SAB-RCC US co-chair
Réjean Couture, SAB-RCC Canadian co-chair
Jon Allan, WQB US co-chair, University of Michigan
Lauren Fry, NOAA GLERL
Drew Gronewold, SAB-SPC, University of Michigan
Nicole Herman-Mercer, USGS
Howard Reeves, USGS, Howard Reeves, GLWQA Annex 8
Ram Yerubandi, SAB-RCC, ECCC, GLWQA Annex 10
Helen Zhang, OMECP
IJC Staff: Lizhu Wang, Victor Serveiss, Rob Phillips

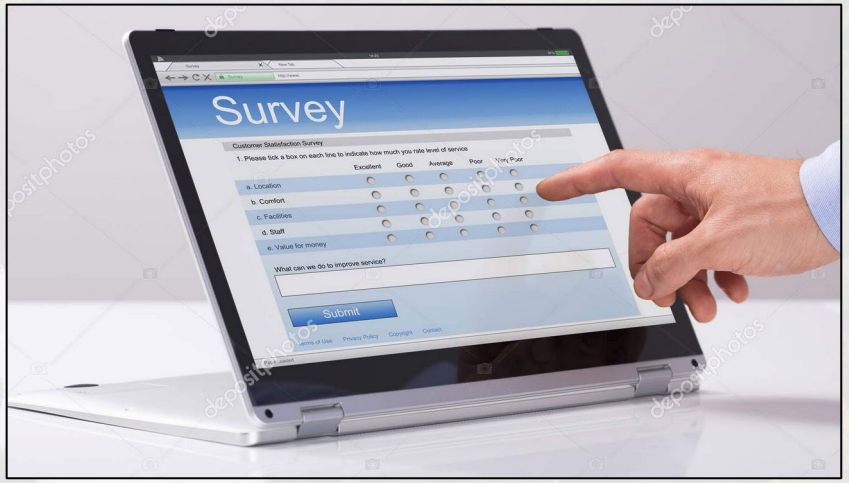
PROJECT OBJECTIVES

1. Develop a conceptual framework of groundwater-surface water (GW-SW) **management elements** with stakeholder input and context.
2. Develop a conceptual framework of **scientific elements** of a basin-scale numerical model with a catalog of data sources
3. Provide recommendations on how to develop basinwide GW-SW models for the Great Lakes



STUDY METHOD

- **Developed management elements:**
  - Interviewed agency representatives
  - Surveyed >100 individuals
- **Developed scientific and technical elements:**
  - Engaged with experts
  - Complied relevant data and information



KEY STAKEHOLDER ADVICE

Questions that Would Inspire Funding and Strategic Resource Investment

- Better understanding of tributary baseflows
- Enhance climate change modeling
- Ensure that the terms of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement are met
- Provide context for regional and local water management
- Improve water quality models

KEY STAKEHOLDER ADVICE

Spatial and Temporal Scales Relevant to Decisions

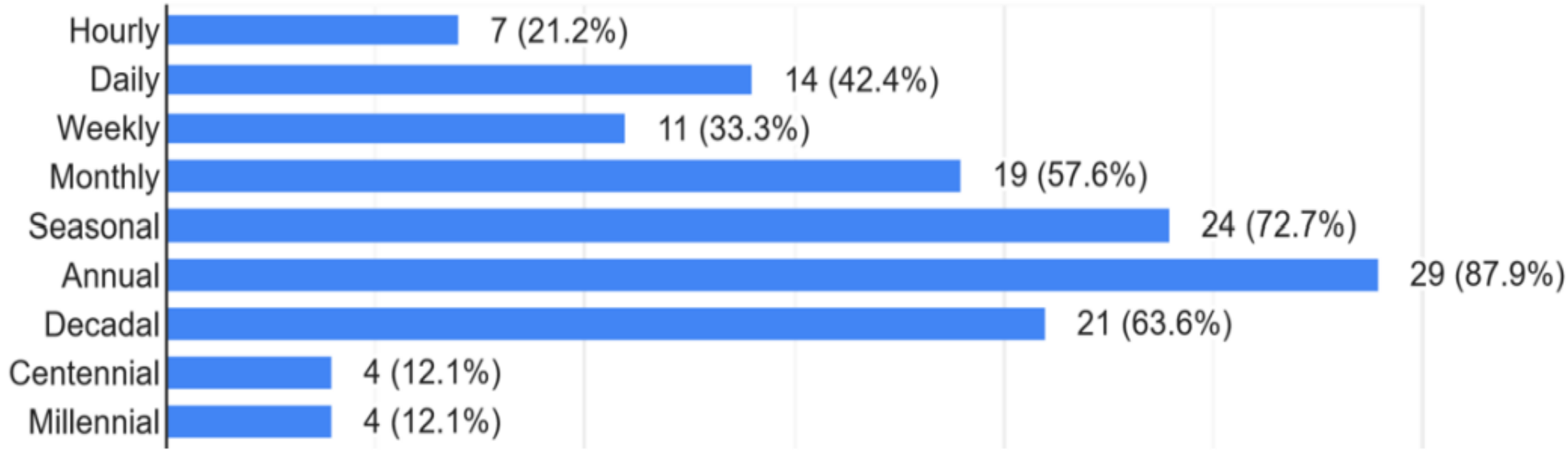
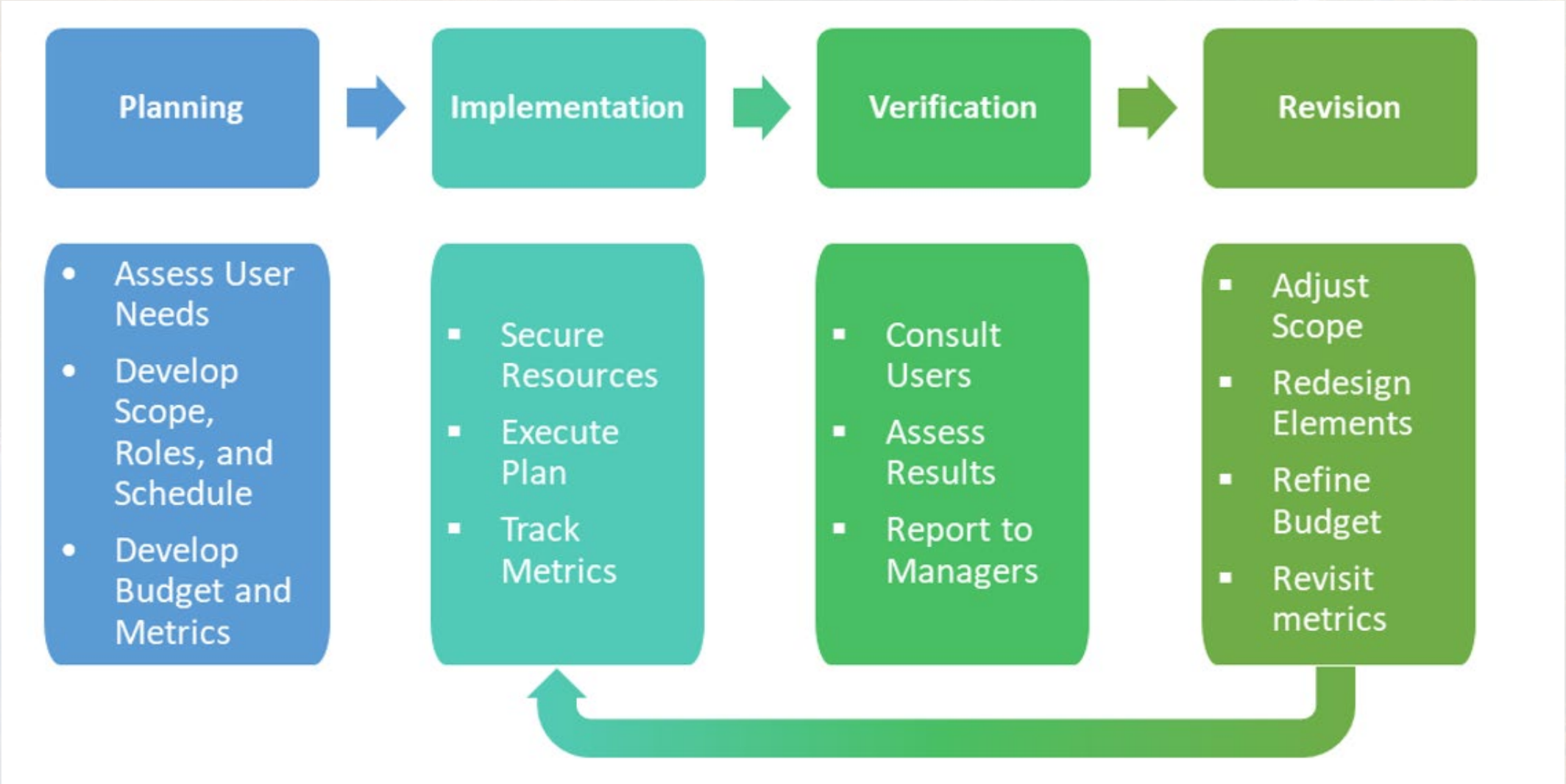
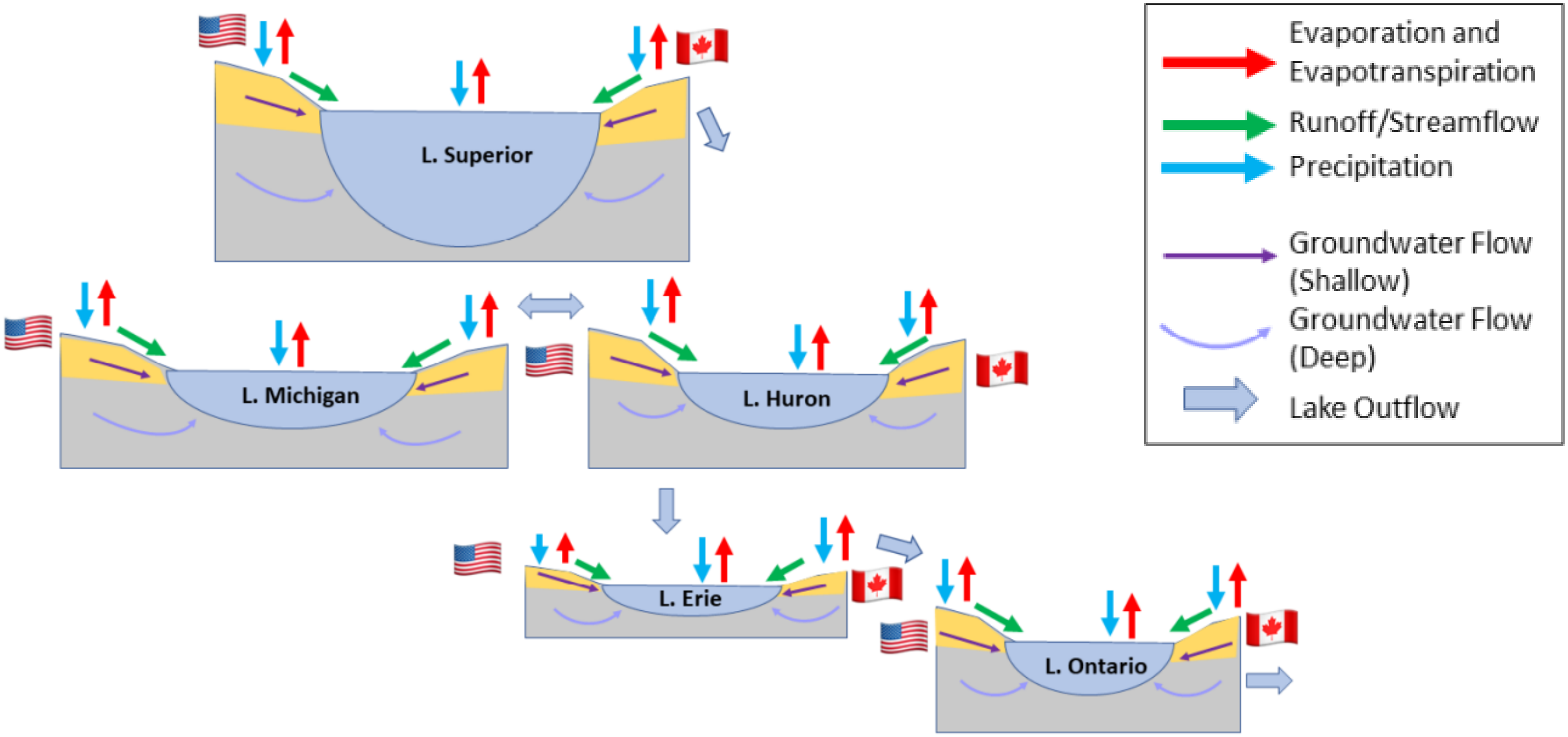


Figure 3. Temporal scale preferences of survey respondents.

MANAGEMENT ELEMENTS OF CONCEPTUAL FRAMEWORK

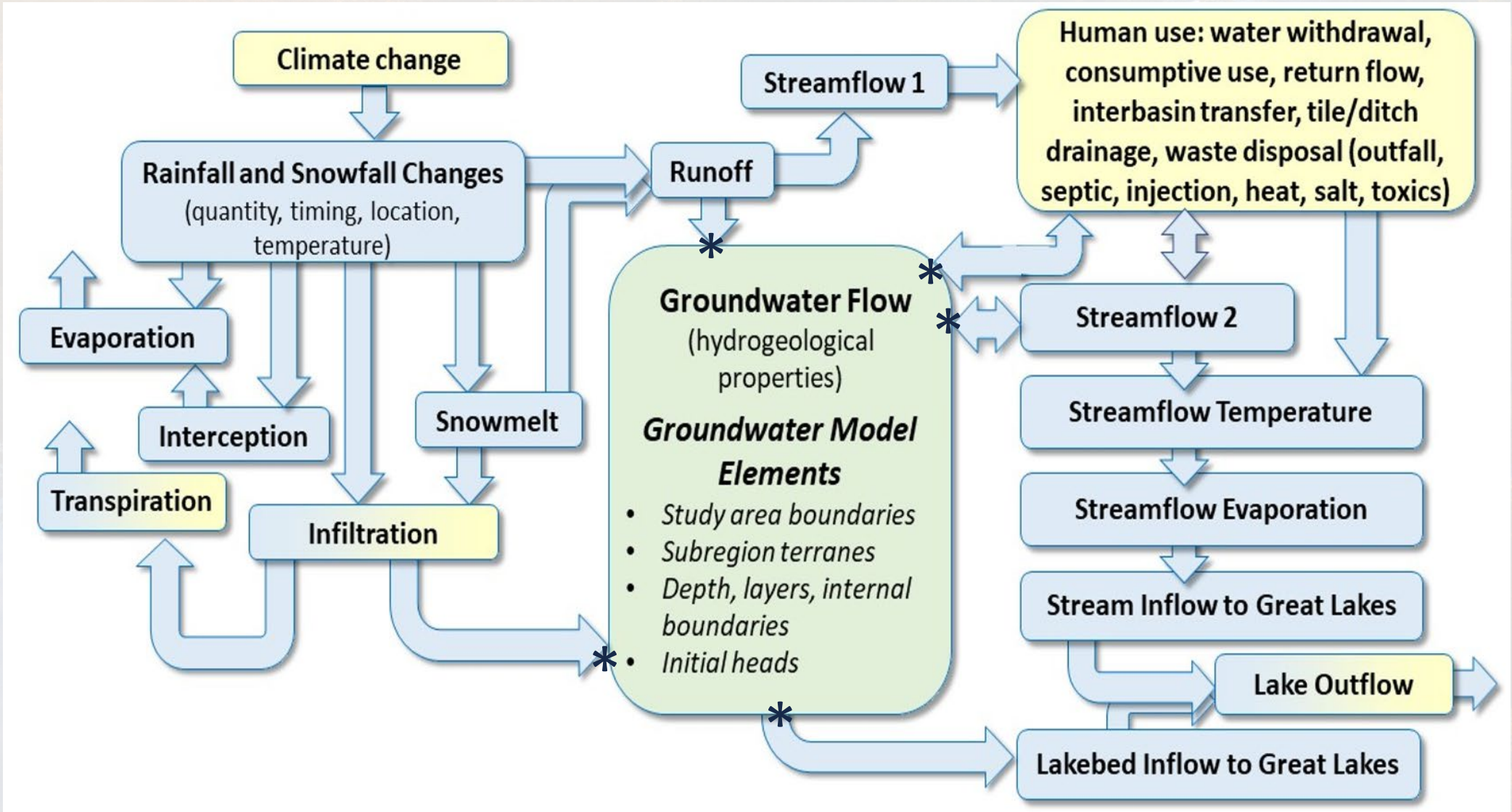


SCIENTIFIC ELEMENTS OF CONCEPTUAL FRAMEWORK

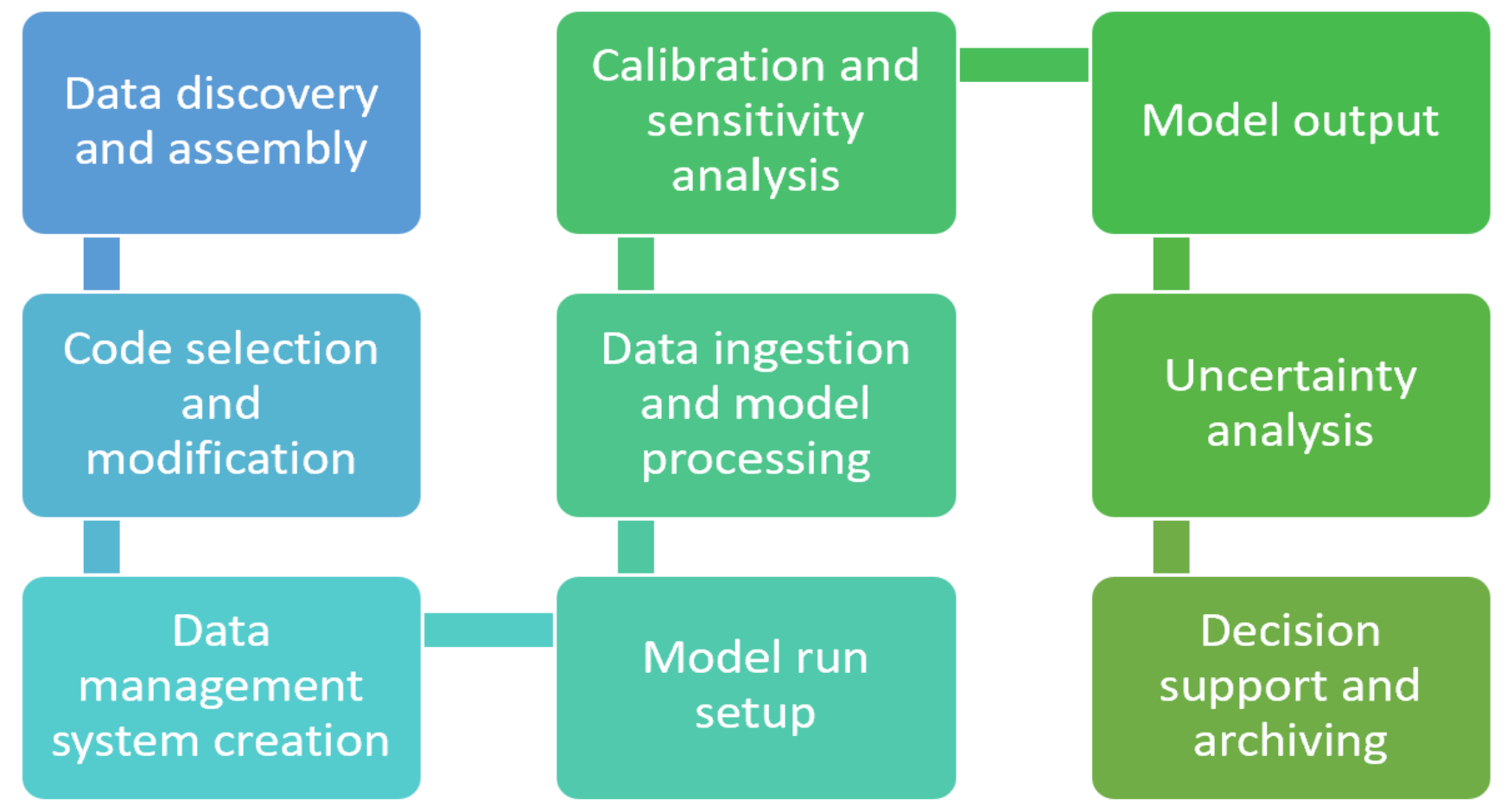


SCIENTIFIC ELEMENTS OF CONCEPTUAL FRAMEWORK

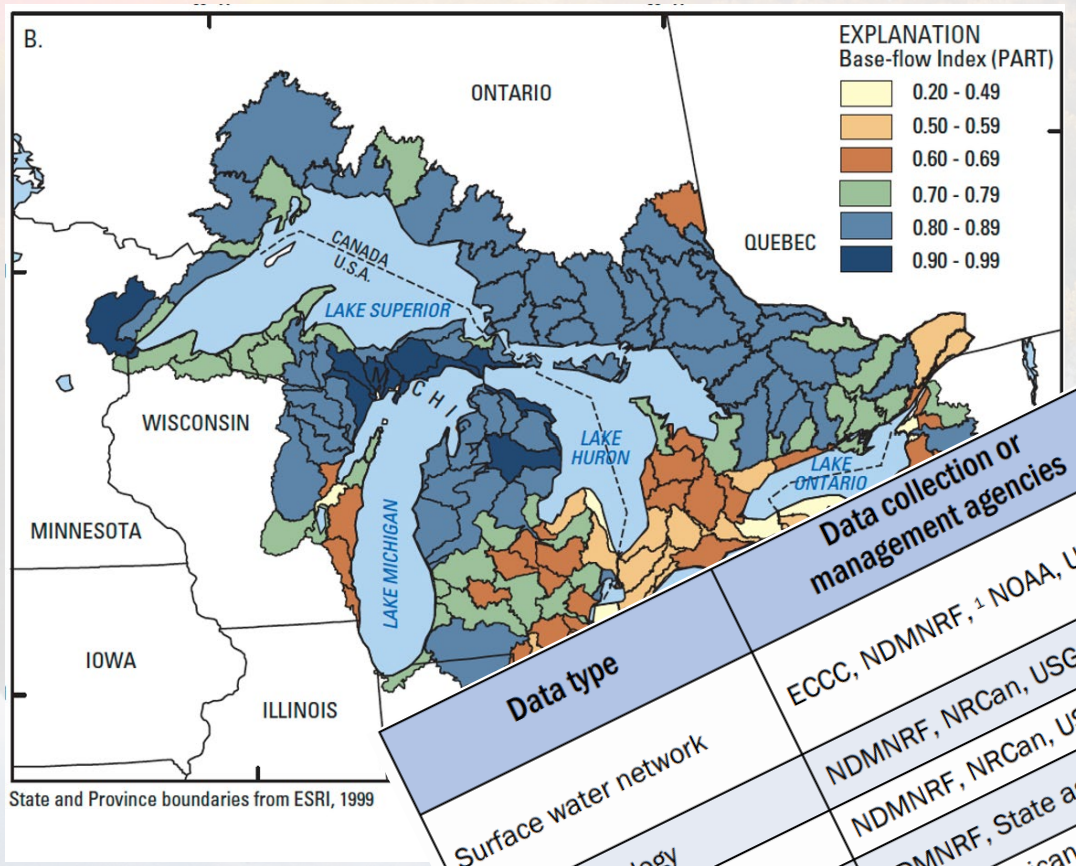
Natural (blue or green) and Human-influenced (yellow) Elements



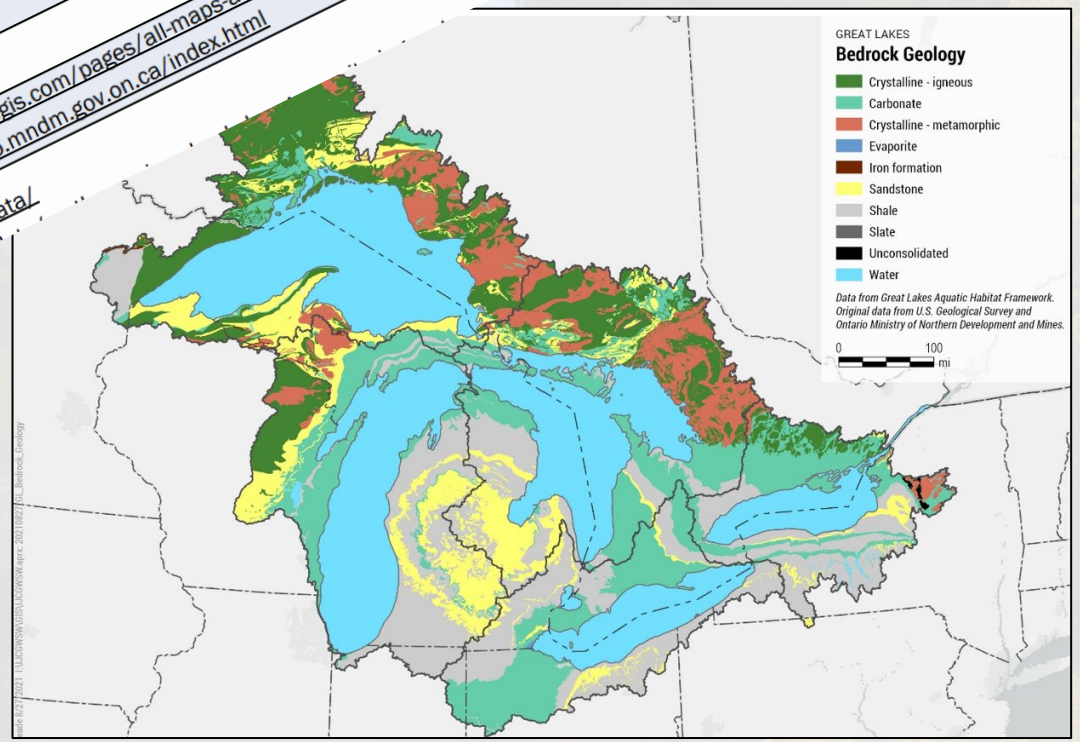
TECHNICAL ELEMENTS OF CONCEPTUAL MODEL



GREAT LAKES HYDROGEOLOGY AND DATA AVAILABILITY



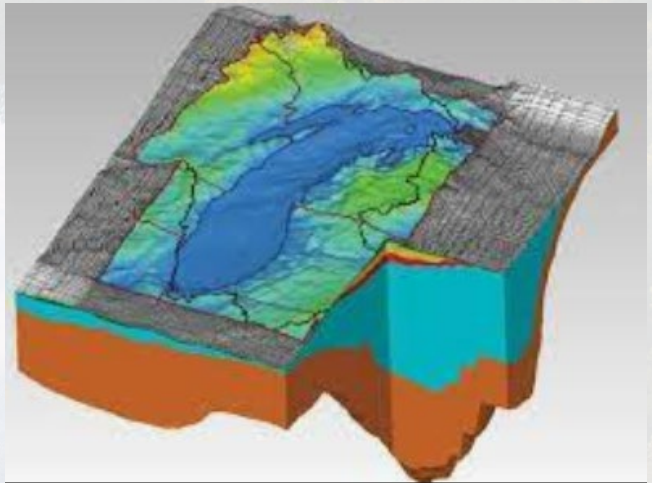
Data type	Data collection or management agencies	Reference or website
Surface water network	ECCC, NDMNRF, [1] NOAA, USGS	water.noaa.gov/about/nwm waterdata.usgs.gov/nwis/rt wateroffice.ec.gc.ca/google_map/google_map_e.html
Bedrock geology	NDMNRF, NRCan, USGS	glahf.org/data/
Glacial geology	NDMNRF, NRCan, USGS	glahf.org/data/
Conductance and aquifer storage	NDMNRF, State agencies	gis-egle.hub.arcgis.com/pages/all-maps-and-apps geologyontario.mndm.gov.on.ca/index.html
Land use/land cover	North American Land Change Monitoring System. USGS	glahf.org/data/

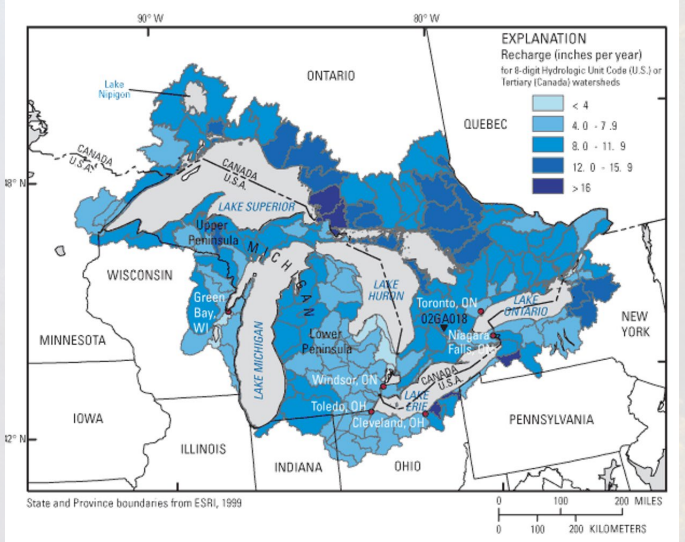


Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

Recommendations

- Conceptual framework as a guide for basinwide modeling to answer specific and temporal questions.
- Governments should maintain and enhance 3D hydrogeological data collection and monitoring programs in areas where GW-SW conditions change rapidly.

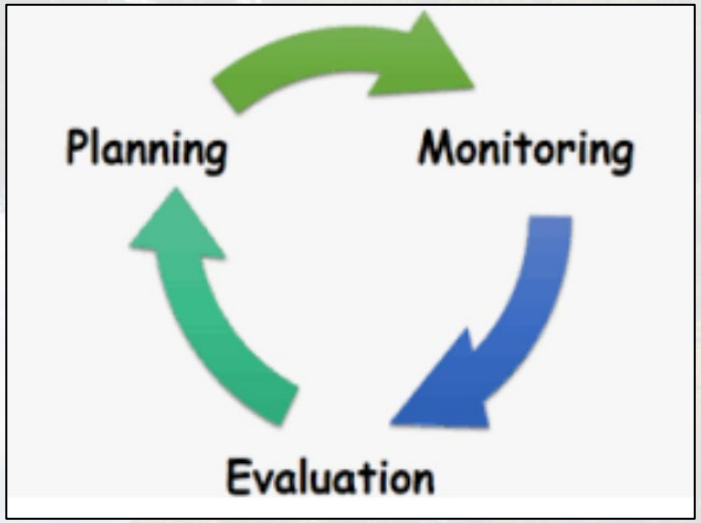




Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

Recommendations

- Lead government GW-SW modeling agencies should develop a basinwide monitoring enterprise plan.
- Federal agencies with strongest technical skills in GW-SW modeling should lead an effort to compile a joint scoping document for the development of a binational numerical GW-SW model.



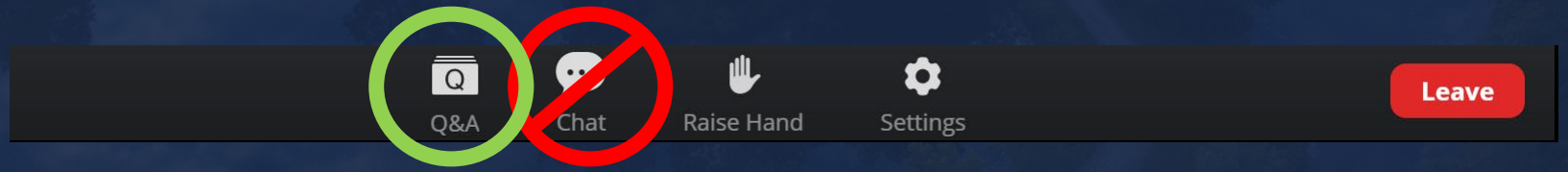
Recommendations

- IJC, GLWQA Annex 8, and Great Lakes Commission should support a binational collaborative of Great Lakes GW-SW modeling, management and policy.

Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

AUDIENCE Q&A

- Please use the Q&A, not the chat



Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

AUDIENCE Q&A

Development of a Great Lakes Groundwater and Surface Water Conceptual Framework

Thank you!

Lizhu.Wang@ijc.org

surveymonkey.com/r/SABRCC22

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You may now leave the Zoom webinar.