



We the undersigned faculty members and students, offer the following written statement to the UN 2023 Water Conference.

Efforts to address and enable water sustainability will fail without a comprehensive inclusion of concerns regarding the effects of climate change on water quality. We manifest the following interests in response to the UN 2023 Water Conference.

Interest 1: Early Warning Systems should include water quality.

Interest 2: A river basin focused; Food-Energy-Water Systems (FEWS) approach permits a more holistic understanding of water quality.

Interest 3: Relationships between science and policy/private sectors must be supported at all levels.

The scientific community has identified threats to water quality stemming from climate change. Chemical and physical processes have been altered by changes in precipitation and temperature. Watersheds have become less resilient to these changes due to agricultural and urban land use changes. The linkages between nutrient enrichment and the development of harmful algal blooms (HABs)—proliferations of certain algal species that impact environmental and public health through toxin production and other adverse effects - are well-established. Often, HABs provide conditions conducive to hypoxia (dangerously low oxygen) in aquatic environments. Climate change is predicted to increase the prevalence of HABs as waters warm, stagnate, and become more nutrient enriched. These issues are accentuated along developing coastlines that are vulnerable to rising sea levels, storms, and losses to ecosystem services. Through better understandings of these and related human stressors, we can expedite ‘early warnings’ of HABs and other water quality impairments to manage water resources more effectively for future generations. Efforts to sustainably supply clean water will not succeed unless these threats are addressed.

Linking climate change and water agendas is useful for a risk-assessment. Climate change models have dire predictions for the reproduction, migration, and vulnerability of a wide range of species and habitats. For example, ocean acidification and eutrophication combined are already exerting major impacts on coral reef ecosystems, in addition to threatening the growth, metamorphosis, and reproduction of commercially-important finfish and shellfish – thereby risking worldwide ecological and economic sustainability. Watershed-focused green and grey infrastructure and strategies are effective tools for mitigation with numerous ecological and climate change-related co-benefits. However, a separate and robust Water Action Agenda that takes an integrated Climate, Food, Energy, Water System (CFEWS) approach can more effectively address the complex interactions impacting water availability and quality. Food and energy production require water, but food and energy production may imperil water quality, hence the need for a CFEWS approach to realistically address co-benefits and tradeoffs.

In order for the scientific community to provide accurate information and council, it needs support at all levels and regional scales. Governments and the private sector must prioritize freely accessible and

reliable water quality data. Scientific understanding of the proliferation of emerging contaminants and their health risks demands transparency. Additionally, local, regional, and international relationships among scientists and the public and private sectors must be encouraged, protected, and guaranteed.

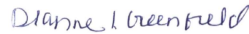
We are encouraged by the enthusiastic drive toward an international Water Action Agenda and the support shown by delegations, civil society, and organizers of the UN 2023 Water Conference. We hope that the conference will spur international dialogues and move us toward an improved understanding of and innovative solutions to the challenges and opportunities surrounding the global water crisis.

NOTE: The above statement reflects the views and positions of the signatories of this document and are not the views of the Advanced Science Research Center at the CUNY Graduate Center.

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