National Institute of Environmental Health Sciences

Two-decade reconstruction of algal blooms in China's Lake Taihu

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Abstract:

The algal blooming in the inland lakes has become a critically important issue for its impacts not only on local natural and social environments, but also on global human community. However, the occurrences of blooming on larger spatial scale and longer time scale have rarely been studied. As the third largest freshwater lake in China, Lake Taihu has drawn increasing attention from both public and scientific communities concerning its degradation. Using available satellite images, we reconstructed the spatial and temporal patterns of algal blooms in Lake Taihu through the past two decades. The blooming characteristics over the past two decades were examined with the dynamic of initial blooming date being highlighted. The initial blooming dates were gradually becoming later and later from 1987 to 1997. Since 1998, however, the initial blooming date came earlier and earlier year by year, with approximately 11.42 days advancement per year. From 1987 to 2007, the annual duration of algal blooms lengthened year by year, in line with the substantial increases in the occurrences of algal blooms in spring and summer months. The algal blooms usually occur in northern bays and spread to center and south parts of Lake Taihu. The increases in previous winter's mean daily minimum temperature partially contributed to the earlier blooming onset. However, human activities, expressed as total gross domestic product (GDP) and population, outweighed the climatic contribution on the initial blooming date and blooming duration. This study may provide insights for the policy makers who try to curb the algal blooming and improve the water quality of inland freshwater lakes. © 2009 American Chemical Society.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Quality

Food/Water Quality: Biotoxin/Algal Bloom

Geographic Feature: ☒

resource focuses on specific type of geography

Freshwater

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content