#0008 | February- 2020

C-PACT WATER BULLETIN

CPACT's WSP (Water Science and Policy) program presents a monthly news bulletin of latest news from India and abroad on debates, concerns and events related to water.

Do we understand our ecosystems?

Moumita Karmakar, Assistant Professor, C-PACT, SNU

For the past two years, students of WSP have undertaken field trips to a bird sanctuary at Surajpur (28°31.425´N, 77°29.714´E) in Tehsil Dadri, District Gautam Buddha Nagar, not so far from SNU. The purpose was to understand the challenges involved in protecting aquatic ecosystems from multiple stressors, such as changes in land-use through rapid urbanisation and the effects of climate change. The Surajpur bird sanctuary is part of a reserve forest. It is home to many species of flora and fauna and comprises a rainfed water body of approximately 60 hectares in area, which provides a good example of a freshwater natural wetland within an urban setting. Such natural urban wetlands are complex aquatic ecosystems, and of enormous ecological importance in India.

The water body receives water from the Tilapta irrigation canal, which is part of the Ganga canal. The Ganga canal was closed for cleaning between September and October in 2019, because of which the flow of water into the Tilapta canal, and into the wetland, decreased sharply. When we visited the Surajpur bird sanctuary on 2 November 2019 we found the water level low and algal production rather high (Fig. 1).

Fig. 1. The water level at a spot in the Surajpur wetland had fallen in 2019

This, however, is no ecological surprise. Closing canal systems even for very short durations alters the hydrological settings of the entire wetland ecosystem and its physical, chemical and biological properties. Figure 2 explains the reasons.

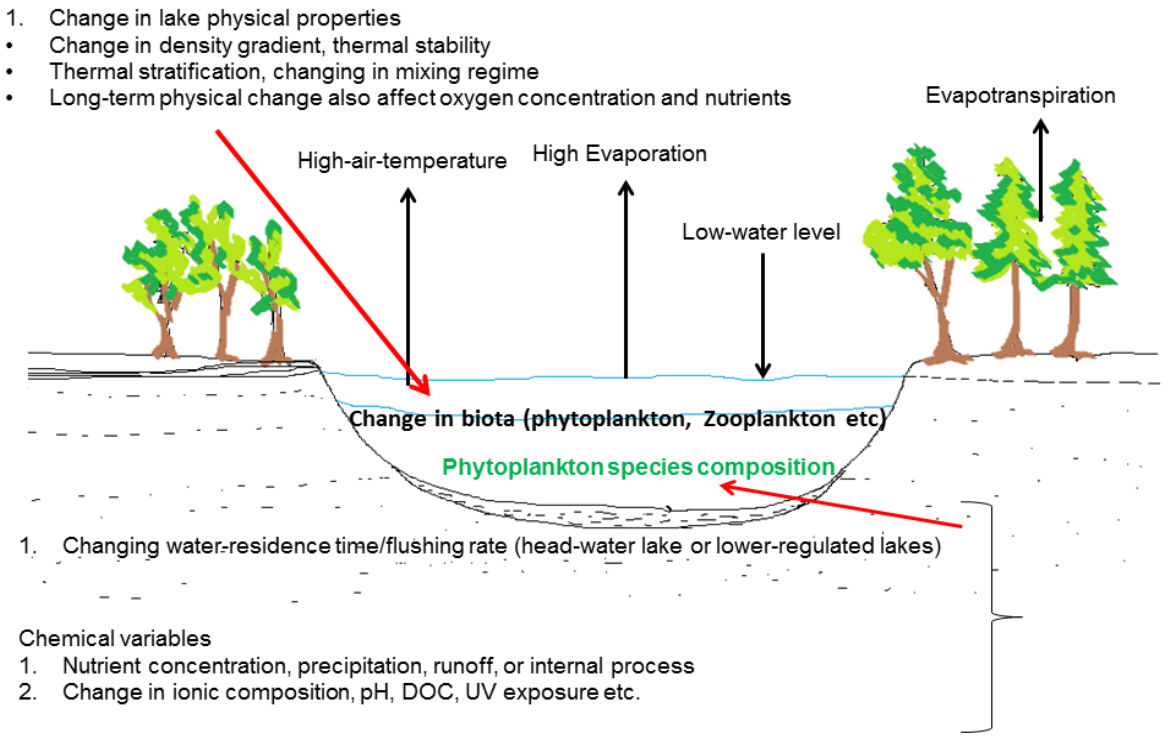


Fig. 2. Interactions among different physical and chemical properties in aquatic systems can raise the primary production of phytoplankton

A fall in the water flow or precipitation raises the ion concentration in an ecosystem to cause such a limnological change. The algal communities are extremely sensitive to changes in their environment, as changes in the physical conditions of a lake or aquatic system strongly affect phytoplankton communities. The mixing of water columns influence nutrient availability and, consequently, phytoplankton production. The enrichment of nutrients (phosphorus and nitrogen) within a wetland enhances the primary production of phytoplankton, and water transparency and light penetration increases (because less dissolved organic carbon is transported from the catchment). An ecosystem is thus highly complex: it has many components and their interactions are nonlinear, and its dynamics can be unprecedented. Moreover, anthropogenic activities shape an ecosystem and modify its structure and function, and self-reinforcing processes can shift and lead to temporary or permanent 'regime shifts'. Anthropogenic activity and climate change have accelerated eutrophication in an aquatic system, and we can know the effects better through enquiries into the responses of aquatic systems to changes in their environment.

Climate change affects terrestrial and aquatic ecosystems worldwide, and shallow lakes and ponds have proved to be especially vulnerable. The Surajpur wetland has experienced urbanization, land-use change and low water levels for certain periods. These may have destroyed the habitats of many floral or faunal species despite the several conservation initiatives. The fieldwork to the bird sanctuary has shown that we need a much better understanding of how aquatic systems function, if we hope to create informed decision-making processes, and develop and implement effective conservation strategies and environmental policies.

References:

https://www.thehindubusinessline.com/news/national/ganga-canal-closed-for-cleaning-to-affect water-supply-in-15-up-districts/article29602841.ece
https://www.dailypioneer.com/2019/state-editions/ganga-canal-closed-till-diwali-for-cleaning.html

Latest News

Piped Water Scheme to get Rs 11,500 Crore in 2020-21

Presenting the 2020 Union Budget, Finance Minister Nirmala Sitharaman said that the Jal Jeevan mission to provide piped water supply to rural households would get a budget of Rs 11,500 crore in the year 2020-21. This allocation will be part of the Rs 3.6 lakh crore mission, which aims to achieve its goal by the year 2024. Read More:

Budget 2020: ₹4,400 crore for clean air, ₹11,500 crore for clean water - and warnings to polluters

The government also allocated a total of ₹11,500 crore for clean water.

Read more:

Andhra Pradesh State Govt Planning To Implement Water Drome Facility In Krishna River

"State government of AP and Ministry of Civil Aviation are planning to implement water drome facility near the Krishna river. Read More:

1,000s of fish 'poisoned' to death in Chennai's Tiruneermalai lake

Thousands of Catla fish, varying from two to four feet, were found floating dead in the Tiruneermalai lake on Saturday morning. The deaths are due to rampant pollution, allegedly caused by industries in the vicinity. Read More:

Budget 2020: Extra earnings for farmers through solar pumps

In a bid to replicate the Gujarat experience of solar pumps on national scale, the Union Finance Minister Nirmala Sitharaman has announced a major initiative towards creating an additional income source for the farmers through solar power generation. Read More:

National Institute of Oceanography launches study on changing monsoon trends

KOCHI: With climate change triggering extreme weather events and changes to the monsoon pattern, the National Institute of Oceanography (NIO) at Goa has launched a study into the causal factors and impact. Read More:

Academic news: scholarships

Monash University Microbiology in Water Engineering Scholarship 2020

Monash University, Australia, invites applications for scholarships in Microbiology in Water Engineering for 2020 from undergraduate and postgraduate students. The scholarships are for environmental engineering (especially water engineering) and public health protection (in particular microbiology/ epidemiology), and is of AUD 5,000.
Read more:

Environment Water scholarships 2020 – 2021

New Zealand Scholarships for international students. Fully Funded to study at University of Auckland, Auckland University of Technology, Lincoln University New Zealand, Massey University, University of Canterbury, University of Otago +2 More

Undergraduate, PhD, Bachelor, Masters, Postgraduate courses
Read more:

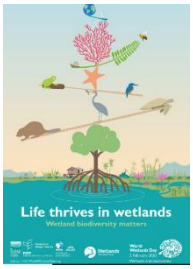
ACWA scholarships 2020-21

ACWA awards several different scholarships each year to qualified graduate and undergraduate students majoring in water resource-related fields. Online applications for the upcoming 2020-21 academic year are now available.

Read more:

Conference/call for papers:

Life thrives in wetlands: An Event



To mark the World Wetlands Day, Wetlands International South Asia is organizing a half-day event on 2 February 2020 at India International Centre, New Delhi. Read More:

Conference: Approaches to Shaping Climate Resilient Agriculture

To be held on 28 February 2020 at The Lalit Ashok, Bengaluru.

Read more:

One Day National Conference: Water Resources: Remediation & Rejuvenation

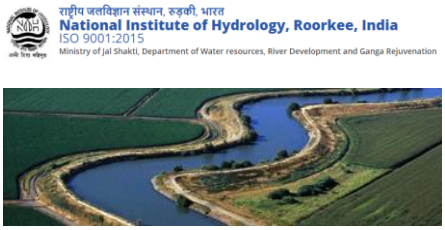
On 26 February 2020 at University of Mumbai. The Conference shall address the current state of challenges, future pathways, different technologies and institutional solutions to accelerate the implementation of water-related Sustainable Development Goal and the 2030 Agenda targets at 'leaving no one behind". Read more:

Course/ Training Seminar Workshop/Contest:

Training School: Hydrogeological Tools and Methods to Decipher Aquifer Characteristics

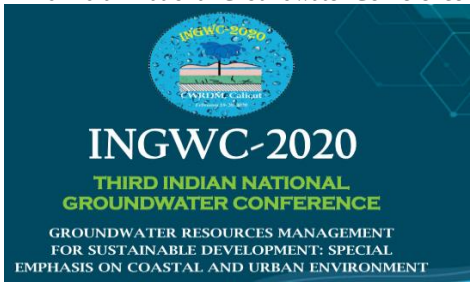
The Watershed Organisation Trust is organizing the training school from February 25—29, 2020.
Read more:

Training Course: Hydrology For Water And Sanitation (11-14 February 2020).



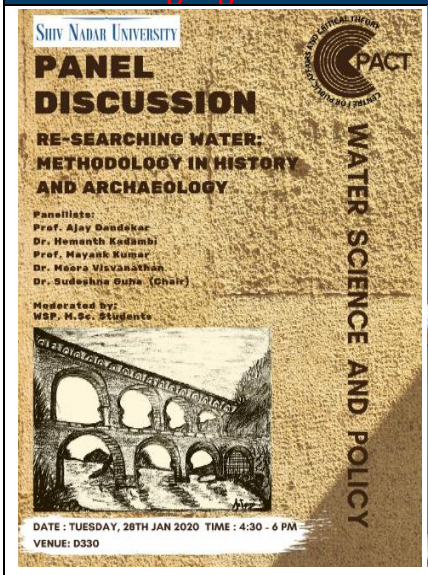
Offered by the National Institute of Hydrology, Roorkee, February 11—14, 2020
Read more:

Third Indian National Groundwater Conference



February 17—20, 2020, Kozhikode, Kerala.
Read more:

Student Highlights



28 January 2020, *Panel Discussion on Re-searching Water: Methodology in History and Archaeology* organised by the M.Sc. students of WSP

For any comments or queries please contact:

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