

# SERIDAS

# Webinar Introduction

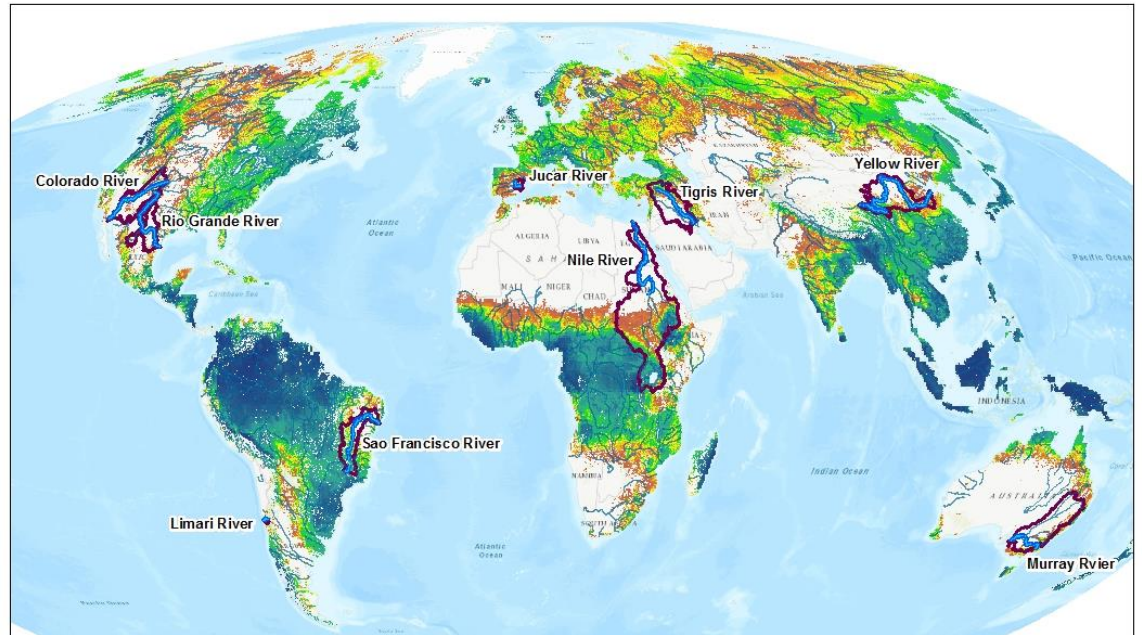
# 06/17/2021

STEPHANIE GLENN, WATER PROGRAM DIRECTOR, HOUSTON  
ADVANCED RESEARCH CENTER



# SERIDAS HISTORY

- ▶ EPA grant to Houston Advanced Research Center
  - ▶ We convened a Mexican-U.S. team
    - ▶ Study of water supply and demand in the **Lower Rio Grande**
- ▶ The Lower Rio Grande/Bravo results brought up questions:
  - ▶ Were they representative of rivers elsewhere?
  - ▶ What are the prospects for engineered rivers in arid lands worldwide?
  - ▶ How will the rivers do under the impacts of climate change, reservoir sedimentation, and population growth?
- ▶ The project resulted in the creation of **SERIDAS**



# SERIDAS Rivers



# Sustainability of Engineered Rivers in Arid Lands (SERIDAS)

Starting Point: 30 percent less  
river water by 2030

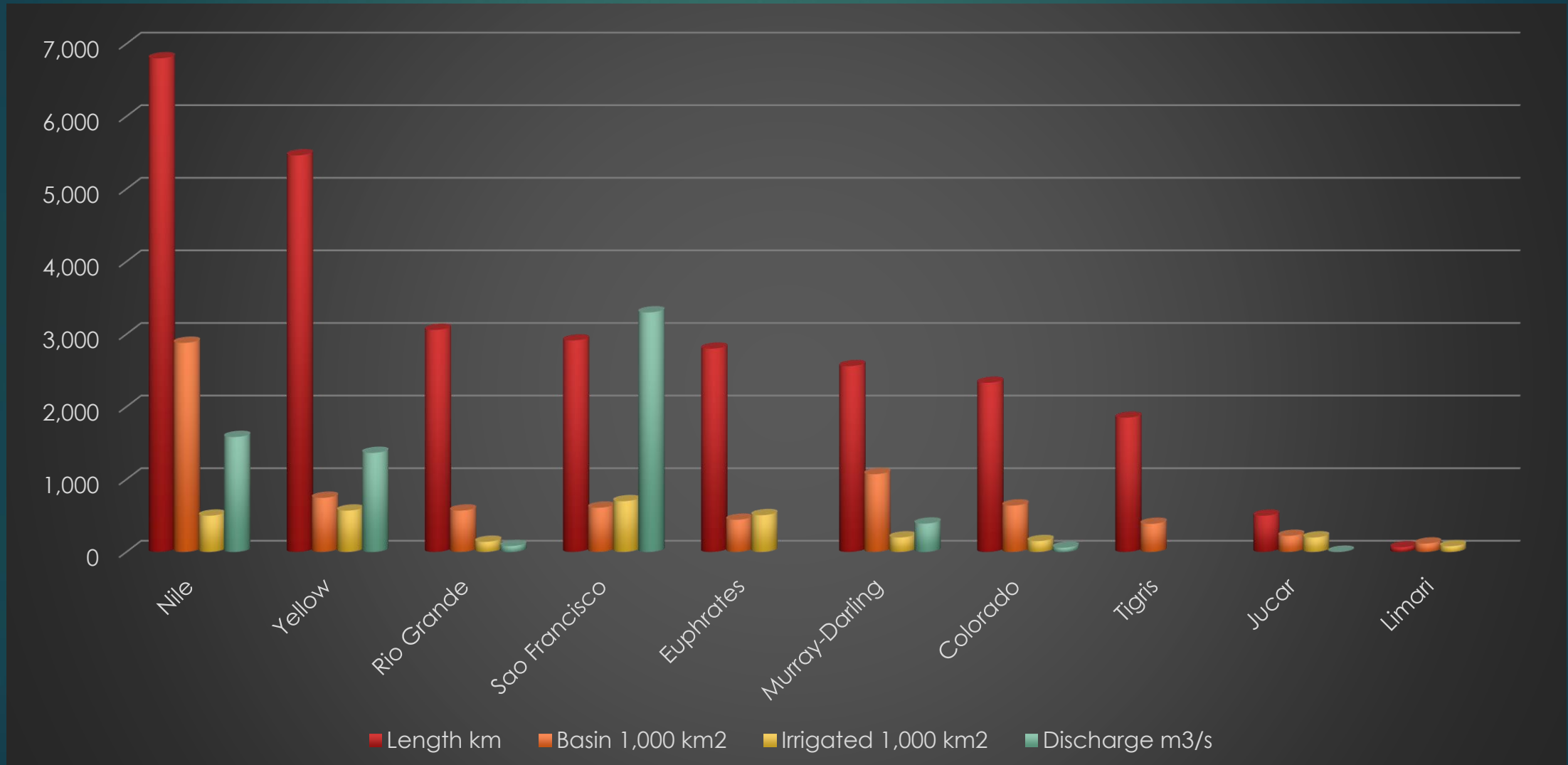
- --Rio Grande
- --North-East Brazil

Climate change

Population growth

Reservoir sedimentation

# SERIDAS Rivers Facts



- ▶ The project team completed Phase I of the project—developing study methodology, assessing past and current river conditions, holding three international workshops:
  - ▶ Austin, Texas (2014)
  - ▶ Hannover, Germany (2015)
  - ▶ Bellagio, Italy (2017)
- ▶ Phase II has projected 2040 and 2060 conditions in the basins, recommended ways for using water more efficiently, and analyzed the impact of changed river conditions on global and regional water, food, and energy security

SERIDAS team includes an expert for each of the rivers as well as specialists for key change factors



SERIDAS Project culminated in the book, which is in the publication process by the CUP, and will be published online summer of 2021

The screenshot shows the Cambridge Core website interface. At the top, the Cambridge University Press logo is on the left, and navigation links for Academic, English Language Learning, Education, Bibles, Digital Products, About Us, and Careers are on the right. Below this is the Cambridge Core header with a search bar for 'Search all journal & book content'. A secondary navigation bar includes 'Browse subjects', 'What we publish', 'Services', 'About Cambridge Core', 'Institution login', 'Register', 'Log in', and 'Cart (0)'. The breadcrumb trail reads 'Home > Books > Sustainability of Engineered Rivers In Arid Lands'. The main title 'Sustainability of Engineered Rivers In Arid Lands' is displayed in large white text on a dark background, with the subtitle 'Challenge and Response' below it. A search bar for 'Search in this book' is positioned to the right of the title. On the left side, a grey placeholder for the book cover is visible with the word 'CAMBRIDGE' at the bottom. The main content area features a 'Coming soon' section with the following text: 'Edited by [Jurgen Schmandt](#), *Houston Advanced Research Center*, [Aysegül Kibaroglu](#), *MEF University, Istanbul*. Edited in association with [Regina Buono](#), *University of Texas, Austin*, [Sephra Thomas](#), *University of Texas, Austin*'. Below this, a table lists the publisher as Cambridge University Press, the expected online publication date as March 2021, the print publication year as 2022, and the online ISBN as 9781108261142. A 'Subjects' section lists 'Earth and Environmental Sciences', 'Environmental Science', 'Hydrology', and 'Hydrogeology and Water Resources'. On the right side, there are three buttons: 'Export citation', 'Recommend to librarian', and 'Buy the print book'.

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# Sustainability of Engineered Rivers In Arid Lands

Challenge and Response

Search in this book

**Coming soon**

Edited by [Jurgen Schmandt](#), *Houston Advanced Research Center*, [Aysegül Kibaroglu](#), *MEF University, Istanbul*  
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# Common Features of SERIDAS Rivers

## Engineering

Large  
reservoirs

Distribution  
channels

## Human Needs

Flood control

Food production

Drinking water

Energy production

## Nature

1

Water from  
mountain  
snowpack or  
highland rains

2

Spring floods  
bring fertile soil

3

Arid or semi-arid  
climate  
downstream

4

Highly seasonal  
streamflow

# Hypothesis

- ▶ The 100-Year-old system of engineered rivers in arid lands will collapse due to **climate change, reservoir sedimentation and population growth** unless:
  - ▶ River authorities stop using rear view mirror
  - ▶ A proactive sustainability plan is developed for each basin/sub-basin
  - ▶ Water stakeholders become management partners
  - ▶ Dependable yield becomes the measure for basin sustainability

Falcon Dam on Rio Grande River

# Response

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New reservoirs?

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Drip irrigation

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Sediment removal

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Efficient irrigation

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Repair leaks in distribution networks

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Crop changes

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Desalination

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Rain harvesting

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Integrated water management

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Active stakeholder participation