Cal State LA Initiatives in Urban Agriculture and Urban Natural Resources Management

Barry J. Hibbs, Department of Geosciences





Food, Agriculture, & Natural Resources Community Needs

- Inner city communities need access to better nutrition, better food.
- Urban farms and gardens will do better when technical assistance is provided (e.g., practice and methodology).
- Underrepresented populations are still underrepresented in key decision-making positions in their communities, hindering effective resource management and food security for these groups.







Major Project Objectives & Audience Served

Immediate Objectives and Goals

- Enhance understanding of urban agriculture and related urban natural resources management at multiple educational levels through a multi-faceted training and research program.

- Expand the number of underrepresented students involved in training in urban agriculture, urban food production, and urban natural resource management.

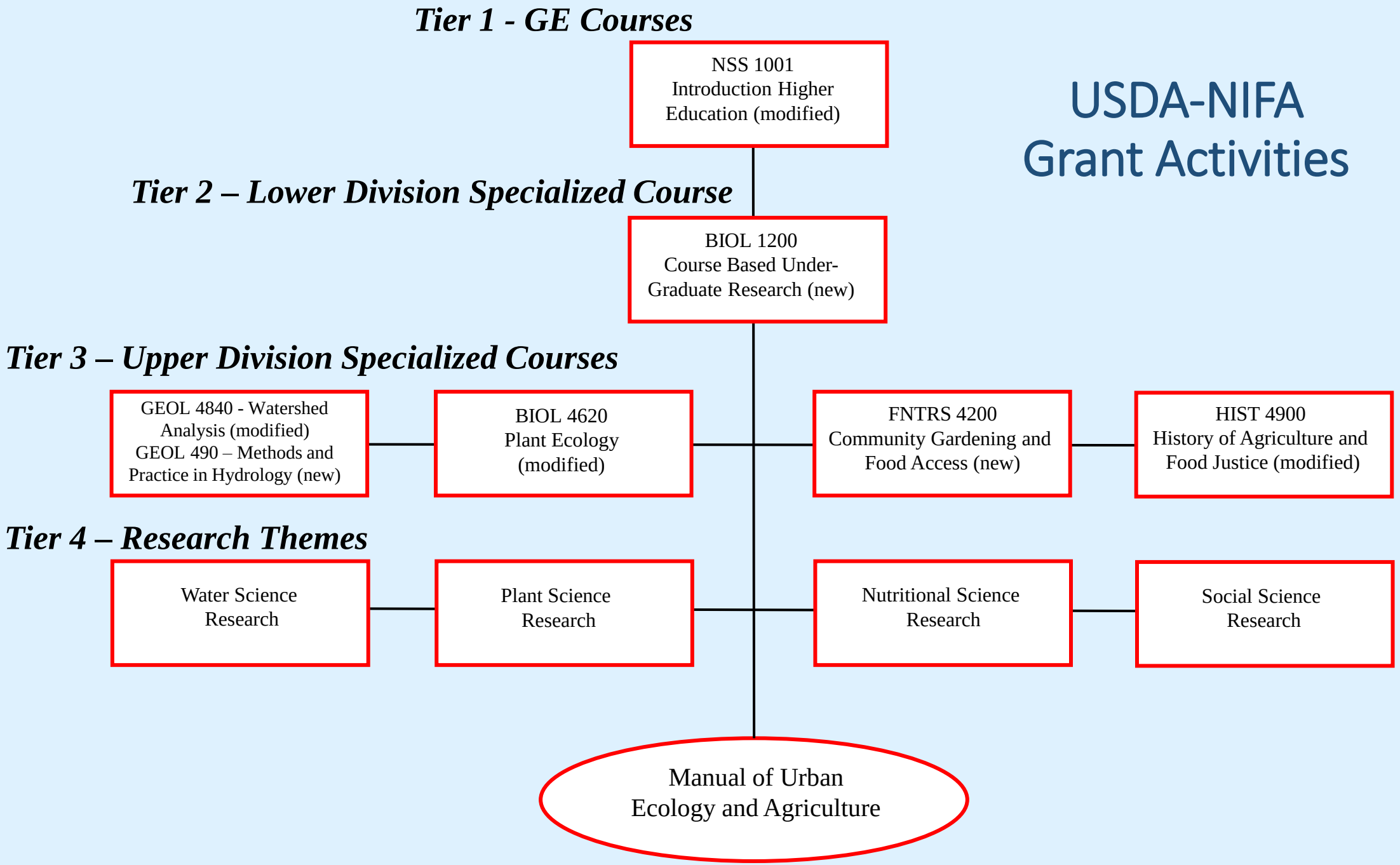
- Develop “pipelines” for students to participate in the program, starting at the lower division undergraduate level, and continuing through graduate degrees and careers in urban agriculture.

External Catalyst Funding



Work supported by USDA-NIFA Hispanic Serving Institutions Education Grants Program under grant no. 2020-38422-32236 from the USDA National Institute of Food and Agriculture Award Number: 2020-38422-32236 ($275,000)

USDA-NIFA Grant Activities



Cal State LA Garden Site





Land Parcel

ADA Compliant Pathway

Needed for grant coursework and research







The Urban Garden

Raised Beds
Rain Garden
Pollinator Garden
Supply Storage Areas
Native Garden
Fruit Trees
Compost System
Student Work Areas

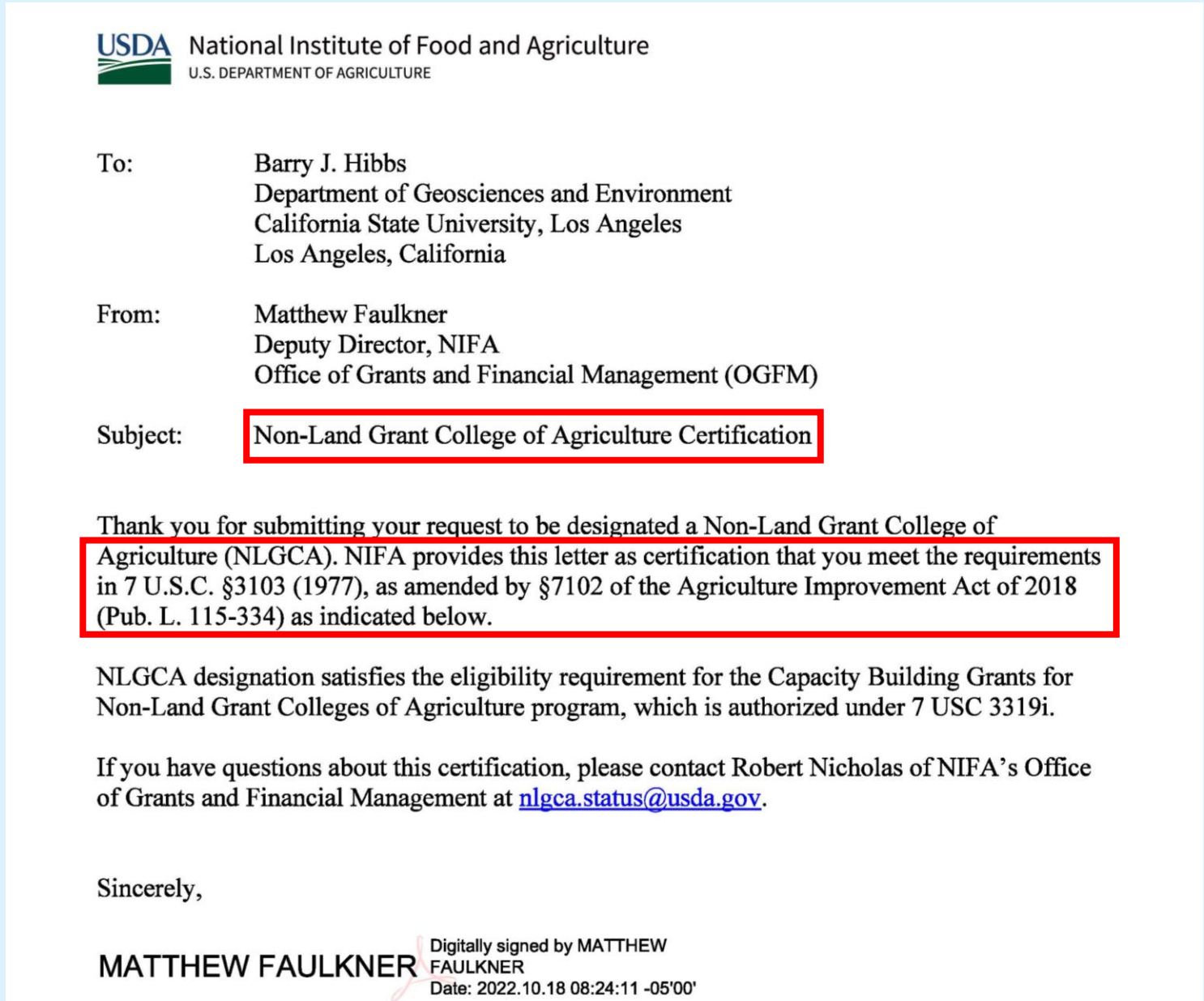




Non-Land-Grant College of Agriculture

certification by

U.S. Department of Agriculture
National Institute of Food and Agriculture



USDA National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

To: Barry J. Hibbs
Department of Geosciences and Environment
California State University, Los Angeles
Los Angeles, California

From: Matthew Faulkner
Deputy Director, NIFA
Office of Grants and Financial Management (OGFM)

Subject: Non-Land Grant College of Agriculture Certification

Thank you for submitting your request to be designated a Non-Land Grant College of Agriculture (NLGCA). NIFA provides this letter as certification that you meet the requirements in 7 U.S.C. §3103 (1977), as amended by §7102 of the Agriculture Improvement Act of 2018 (Pub. L. 115-334) as indicated below.

NLGCA designation satisfies the eligibility requirement for the Capacity Building Grants for Non-Land Grant Colleges of Agriculture program, which is authorized under 7 USC 3319i.

If you have questions about this certification, please contact Robert Nicholas of NIFA's Office of Grants and Financial Management at nlgca.status@usda.gov.

Sincerely,

MATTHEW FAULKNER Digitally signed by MATTHEW FAULKNER
Date: 2022.10.18 08:24:11 -05'00'

Matthew Faulkner
Deputy Director, Office of Grants and Financial Management
National Institute of Food and Agriculture (NIFA)

In addition to urban agriculture – a vast urban retrofit has been proposed in Southern California to create much more urban green space

(includes urban agriculture, and other newly vegetated areas)

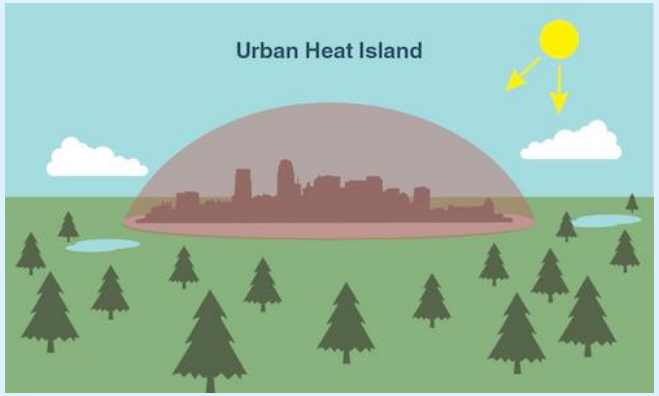




Interdisciplinary Linkages/Student Opportunities

In addition to urban food gardens & urban agriculture, the retrofit of Los Angeles with more urban green space can create enormous research/job potential for CSULA students and faculty

Urban heat island mitigation



River restoration and water supply/quality issues



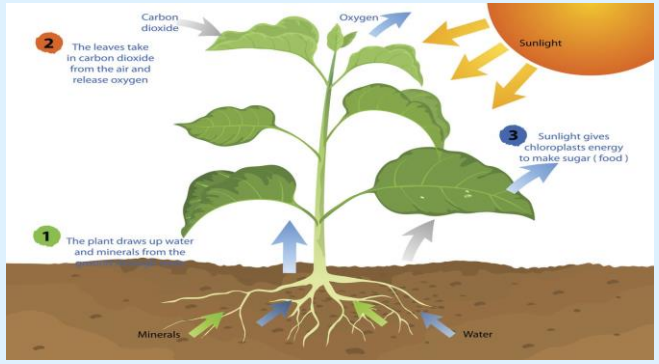
Pollinators

Water Quality Improvement

Space for People and Wildlife

+++++

Carbon sequesteration by plants, soils



Soil regenerative projects



Activities in Urban Retrofits

Urban retrofit projects require interdisciplinary teams

- soil scientists
- civil and environmental engineers
- hydrologists
- geologists/geomorphologists
- biologists and chemists
- urban planners
- mathematicians
- economists
- political scientists
- legal experts
- landscape architects







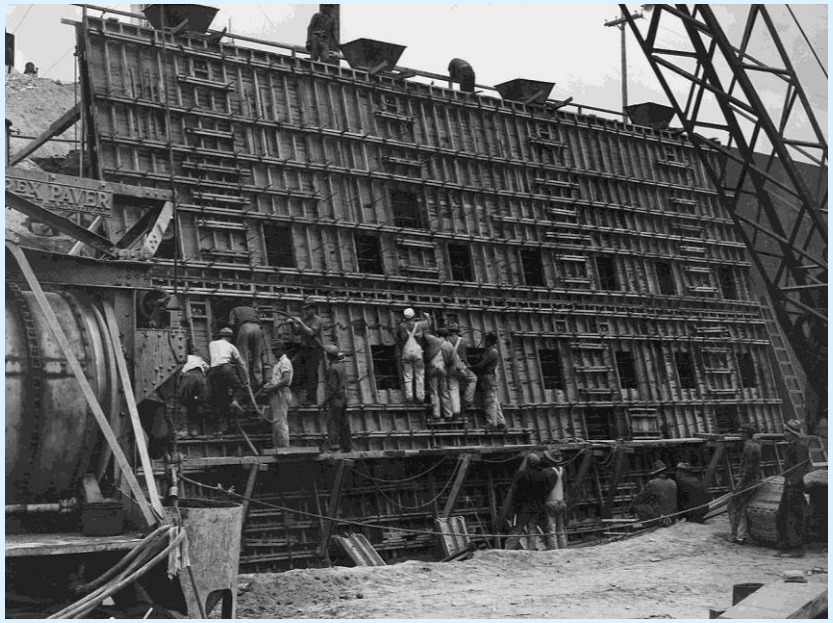




LA River and Other Watersheds in the Los Angeles Metropolitan Area

Issues of Stream Restoration





Source:https://en.wikipedia.org/wiki/Los_Angeles_River#/media/File:Los_Angeles_River_at_Griffith_Park,_ca.1898-1910_(CHS-2033).jpg



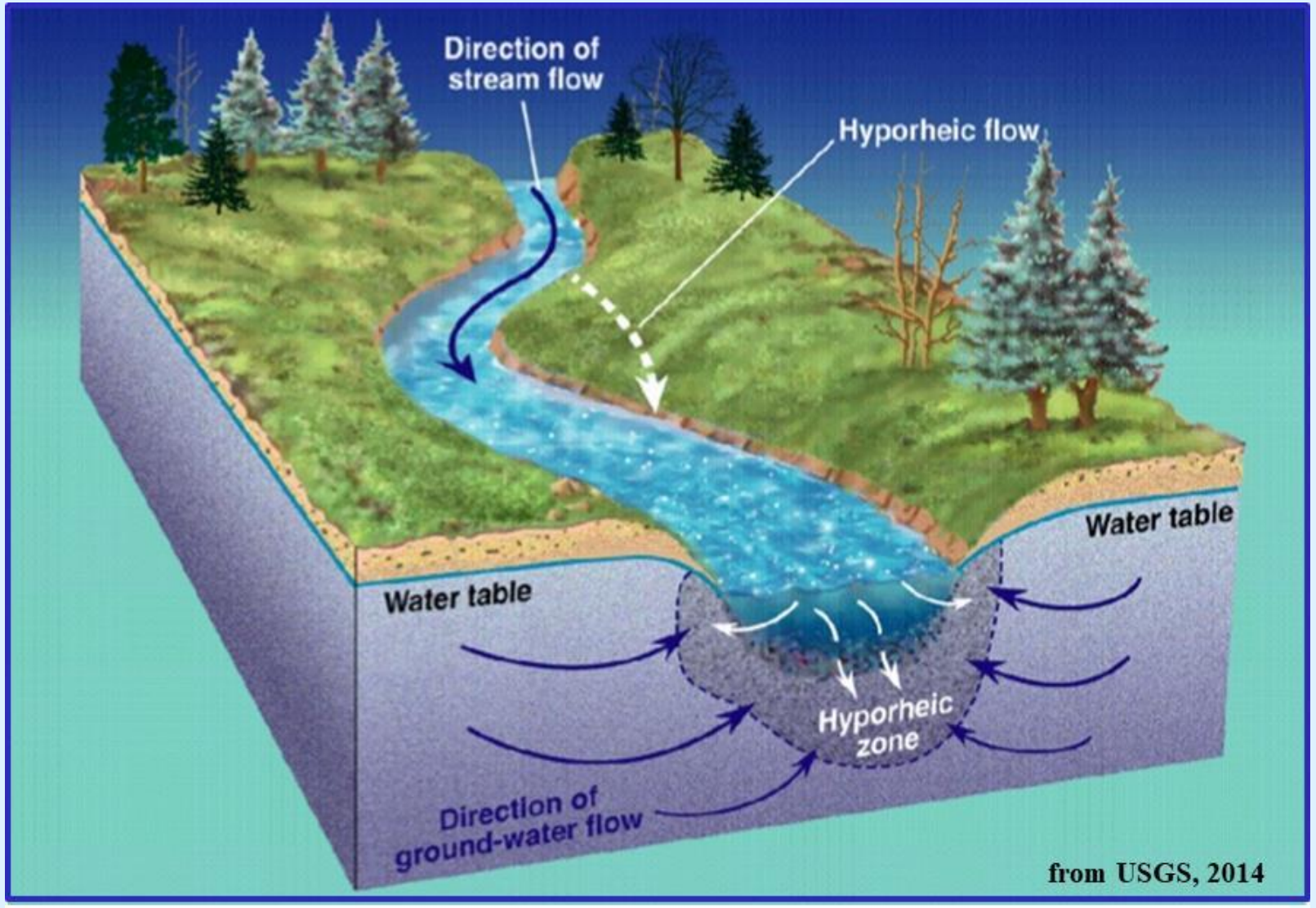
LA River Watershed





Public Image Today

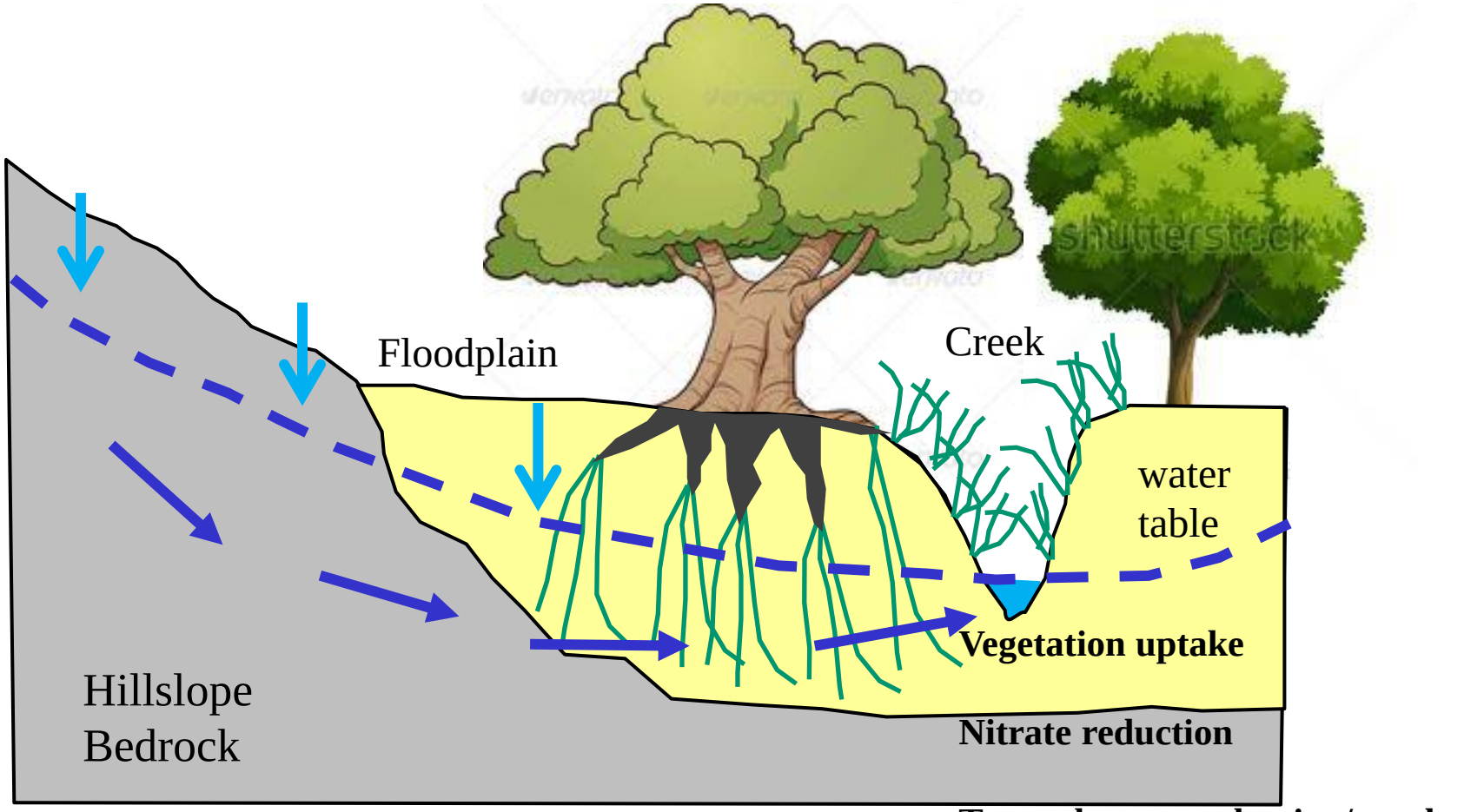
Natural Stream



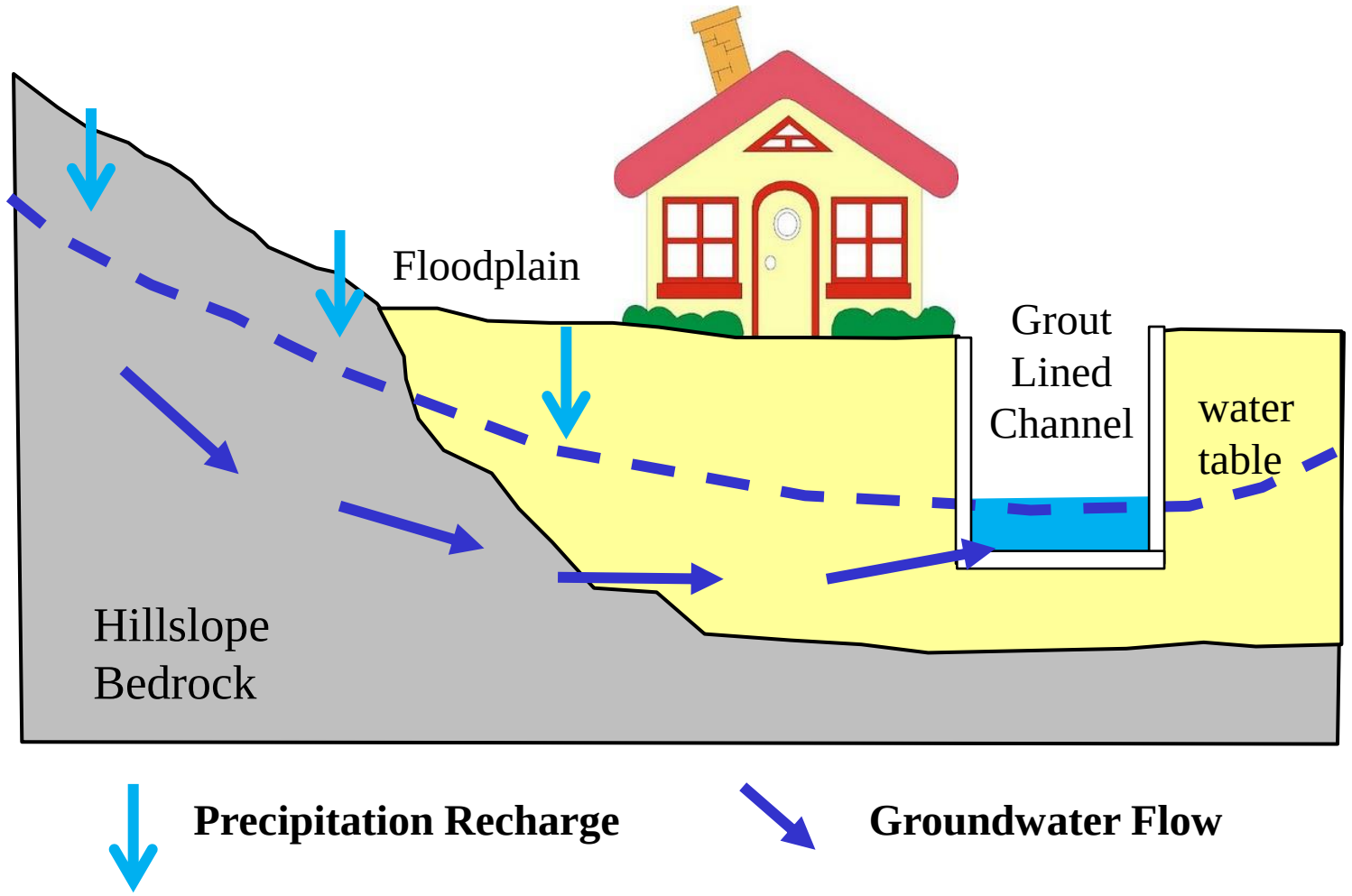




Biogeochemical Processes in Unlined Channels



Lined Channels Suppress Biogeochemical Processes



Concrete-Lined and Unlined Stream Channels

- *Technical Issues of Stream Restoration*
- *Supporting Studies and Research*





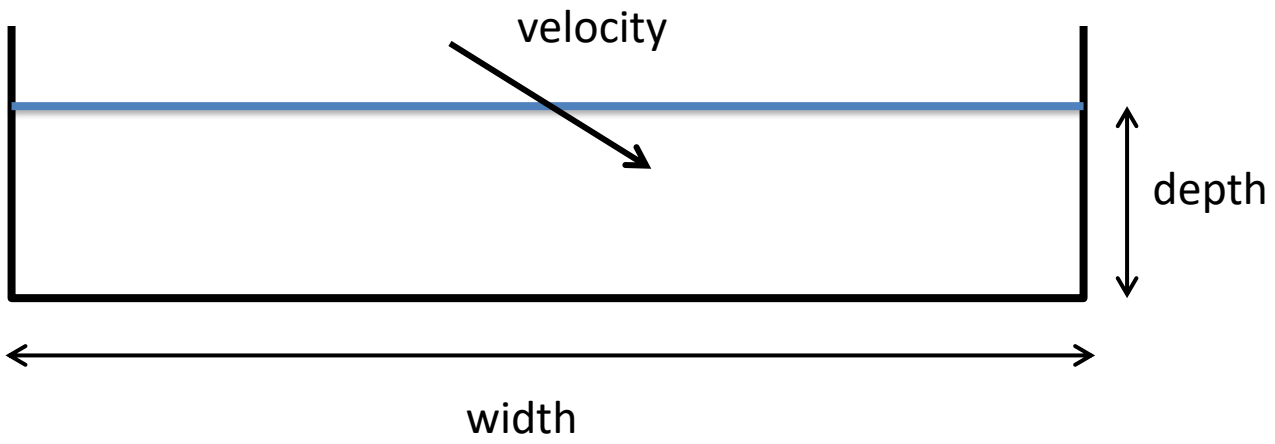
Streamflow Discharge:

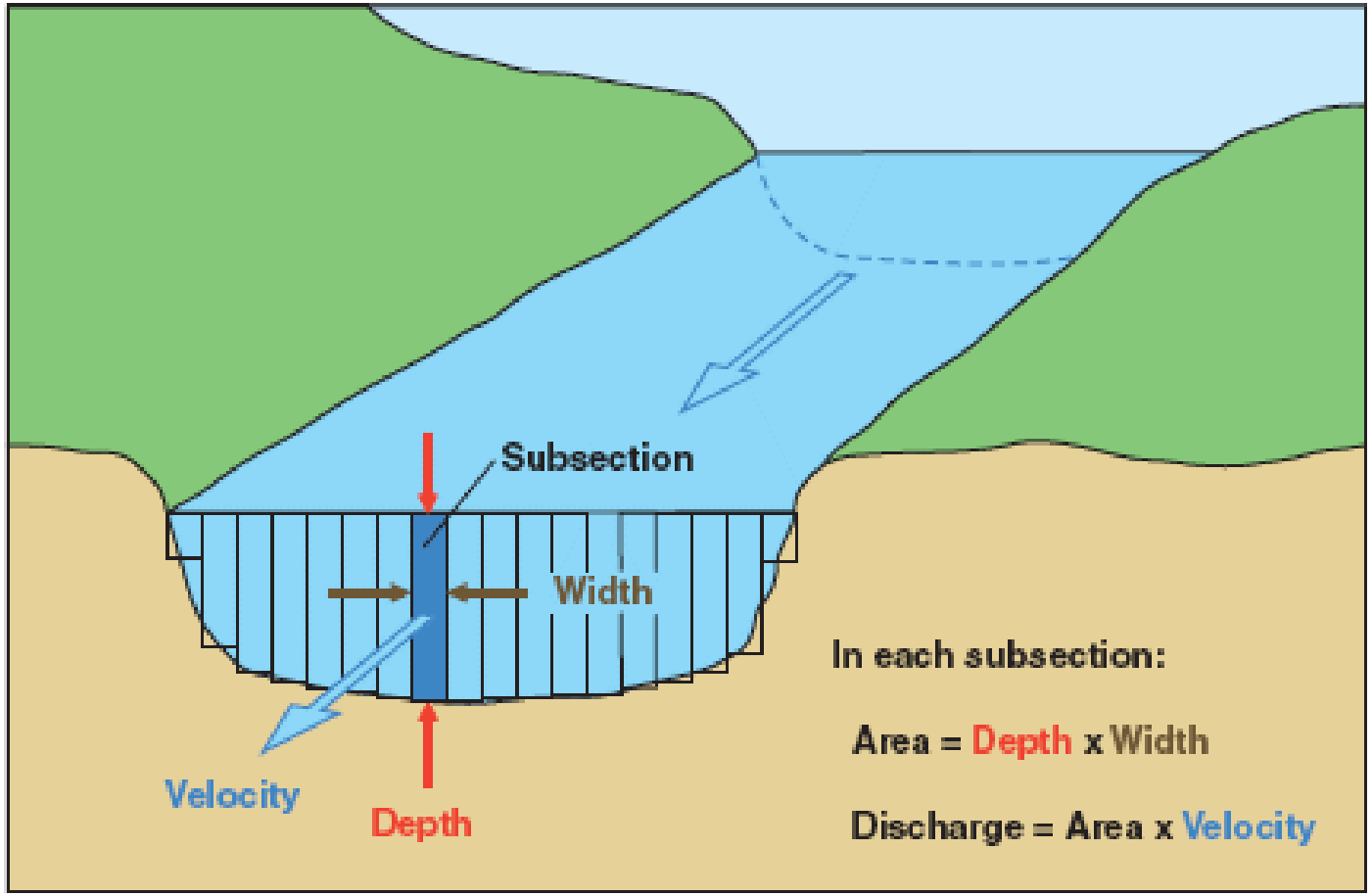
To measure streamflow, need to know:

- stream width
- water surface elevation (“stream stage” or depth)
- flow velocity

Streamflow = width x depth x velocity

$L \times L \times L/T = L^3/T = cfs$





Current-meter discharge measurements are made by determining the discharge in each subsection of a channel cross section and summing the subsection discharges to obtain a total discharge.

Stream Gaging by Wading



WATER MEASUREMENT MANUAL

7-275C
(4/61)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

DISCHARGE MEASUREMENT NOTES

Meas. No. 480
Comp. by OFS
Checked by WF

Snake River near Moran, Wyoming

Date July 6, 1964 Party J. O. F. Sifolar

Width 214 Area 1,140 Vel. 3.70 G. H. 6.70 Disch. 4,220

Method .6;2.8 No. secs. 23 G. H. change 0 in hrs. Susp. 30 0

Method coef. 1.0 Hor. angle coef. 1.0 Susp. coef. 1.005 Meter No. 217050

GAGE READINGS

Time		Recorder	Inside	Outside
1700	6.72	6.70	6.70	
1705	6.72	6.70	6.70	
1810	6.72	6.70	6.70	
Weighted M. G. H.		6.70		
G. H. correction				
Correct M. G. H.				

Date rated 5-31-62 Used rating
for rod ____ susp. Meter 5 ft.
above bottom of wt. Tags checked ✓
Spin before meas. OK after OK
Meas. plots ____% diff. from ____ rating
Wading, cable, ice, boat, upstr., downstr., side
bridge ____ feet, mile, above, below
gage, and ____
Check-bar, chain found ____
changed to ____ at ____
Correct ____
Levels obtained ____

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section cobbles

Flow even Weather fair

Other ____ Air ____°F@ ____

Gage OK Water 58 °F@ ____

____ Record removed ____ Intake flushed U No

Observer ____

Control clear

Remarks ____

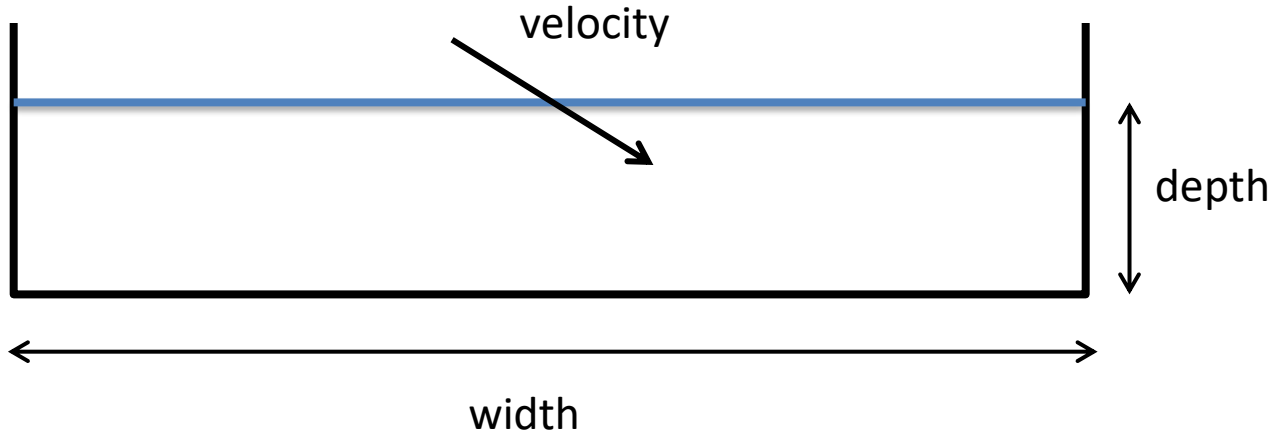
G. H. of zero flow ____ ft.

Figure 60.—Typical current-meter notes and computations for the midsection method, using formula (27). (Sheet 1 of 3.) 103–D–955.

Slow down of velocity due to replacement of concrete with earth channel and vegetation is commonly a 50% reduction of velocity

Streamflow = width x depth x velocity

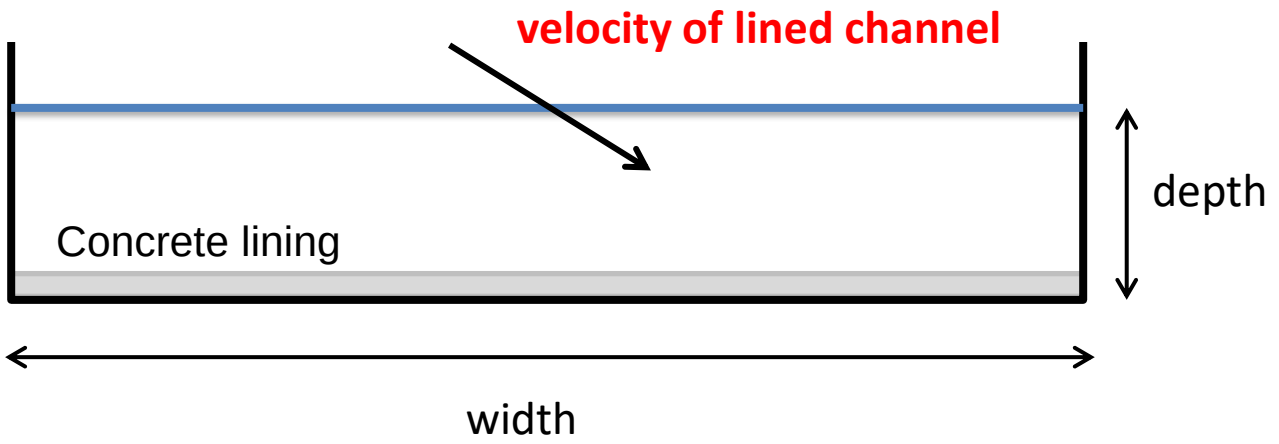
L x L x L/T = L^3/T = cfs

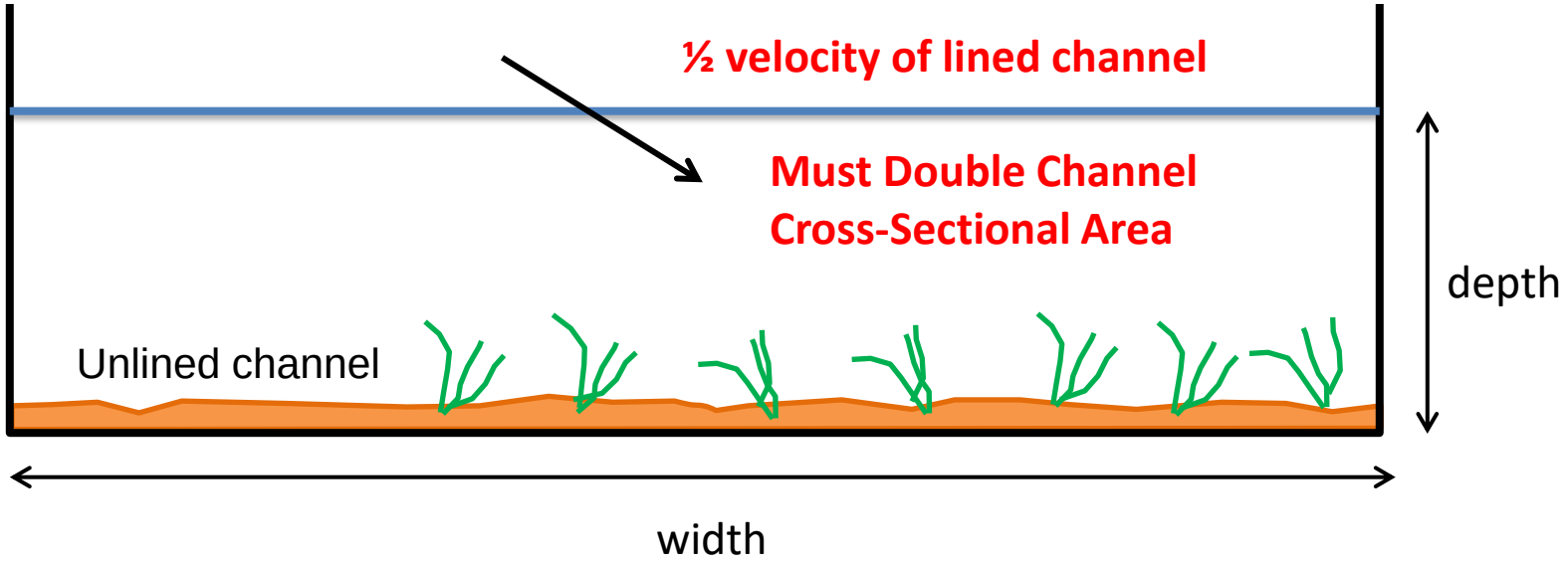






Streamflow = width x depth x velocity





LA River Watershed





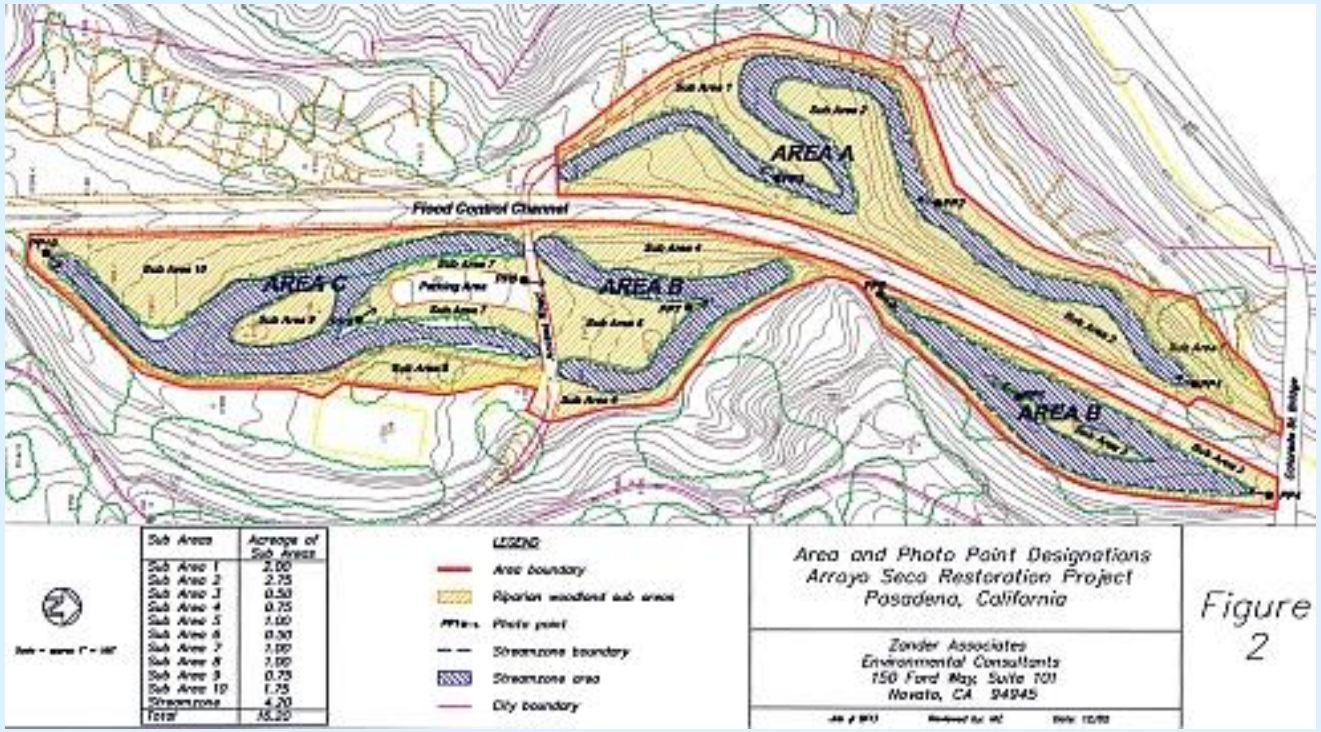


Partial Stream Restoration Alternatives





Arroyo Seco BFI Mitigation





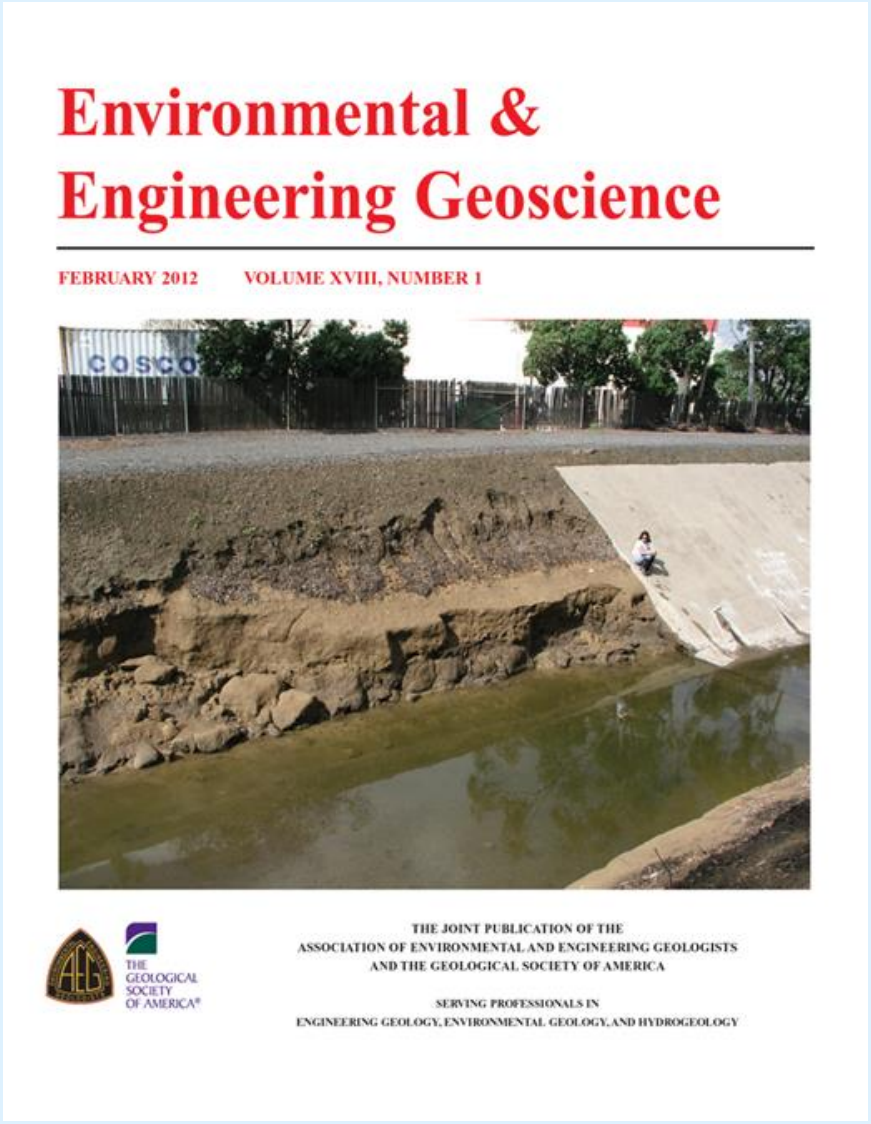


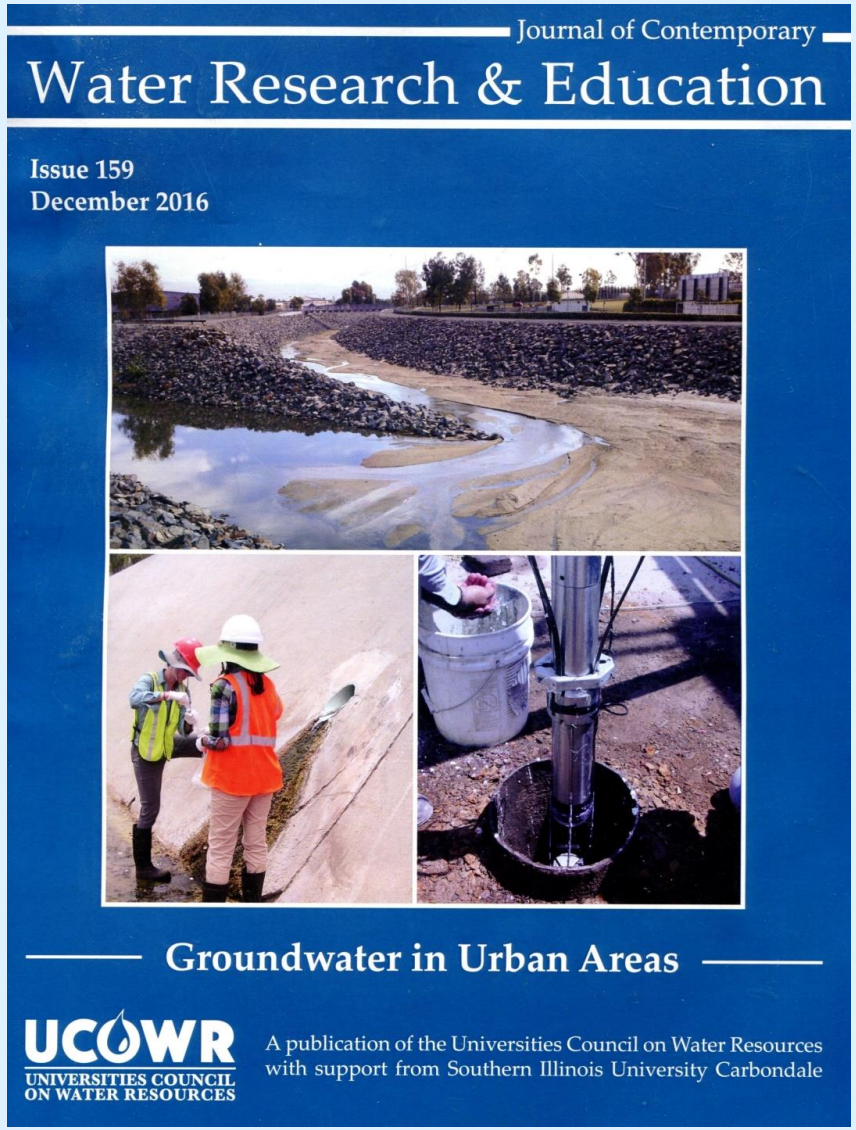
Medea Creek Sectional Stream Restoration



Scientific and Technical Support

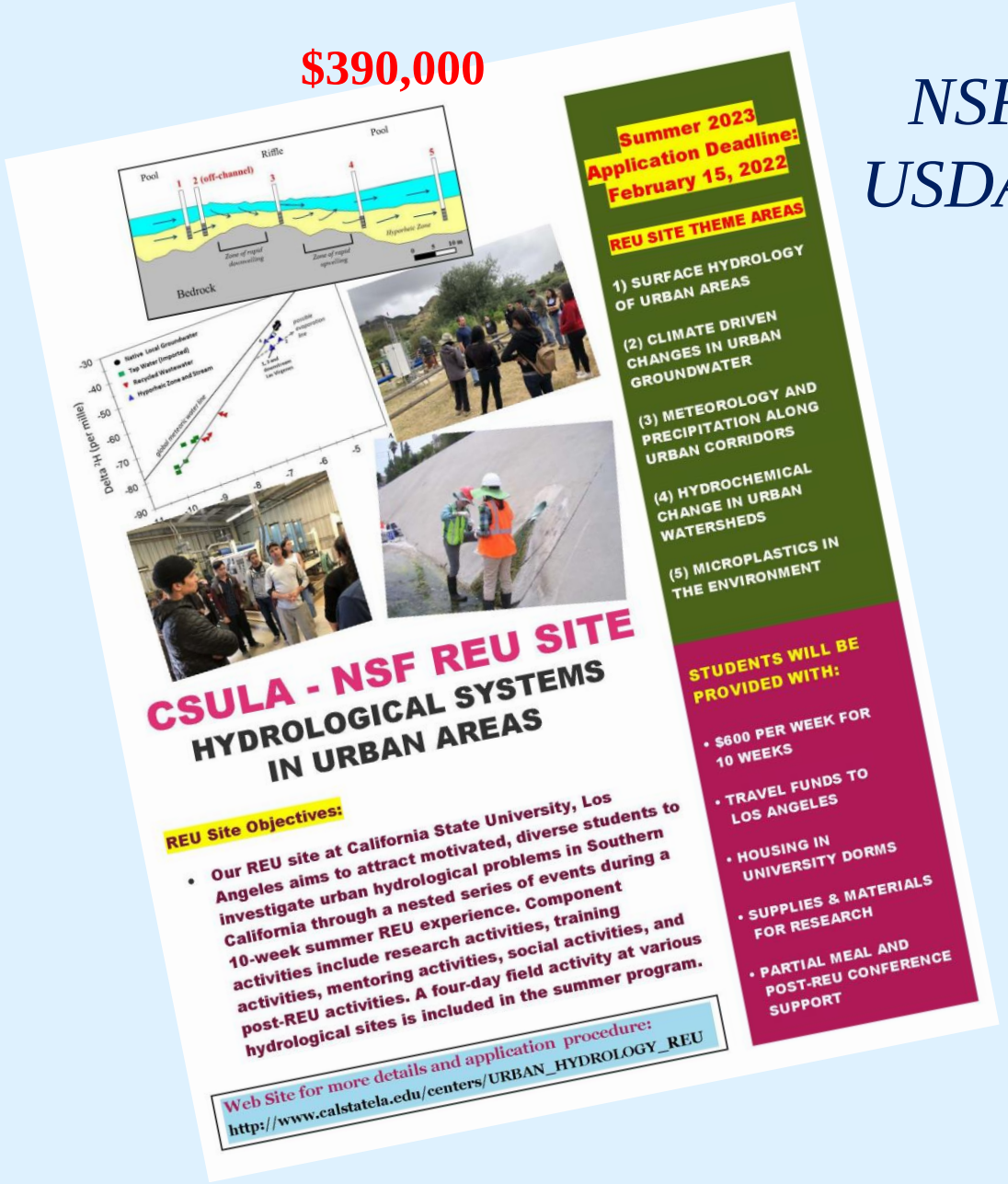
Urban Hydrology Publications



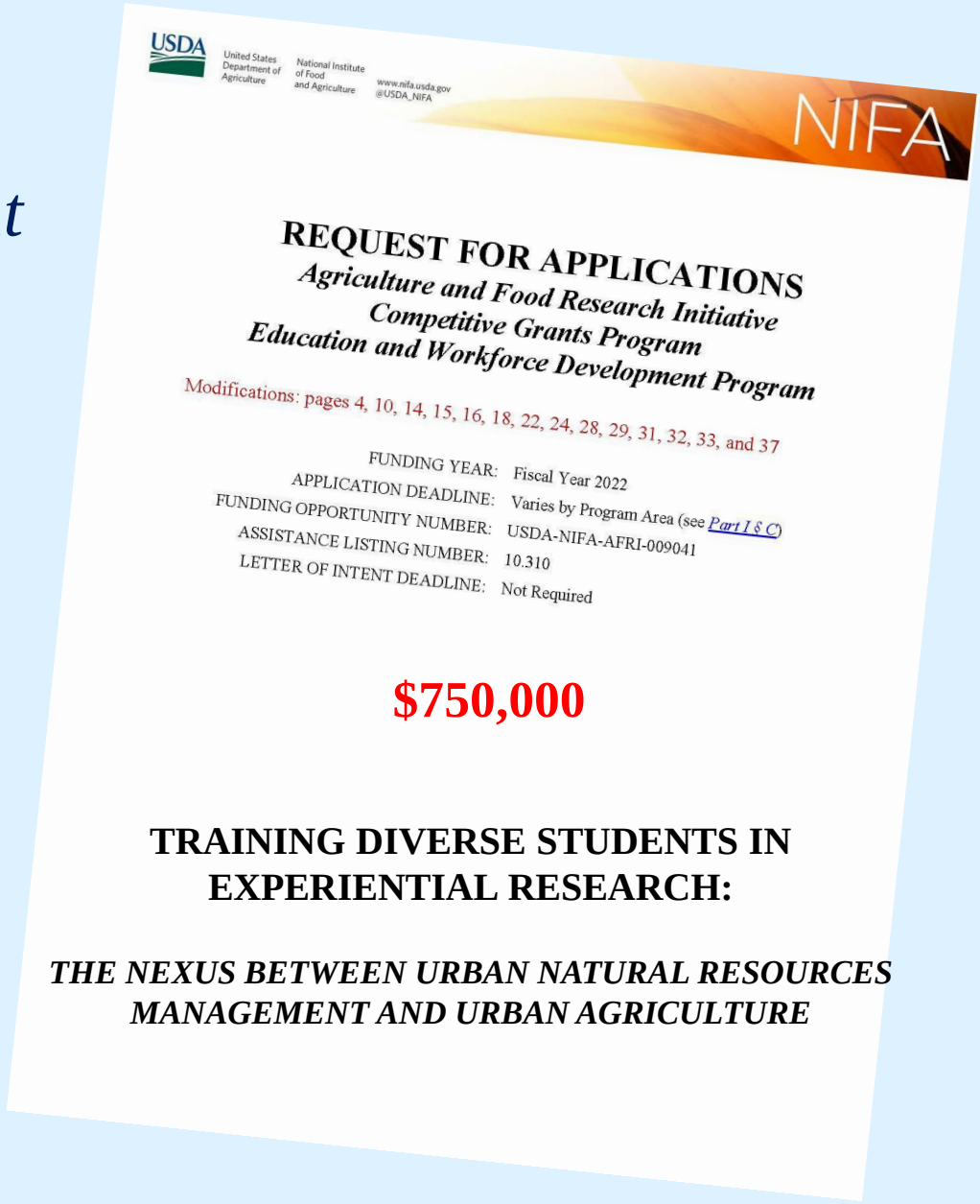


Urban Natural Resources Research

$390,000



NSF REU Grant
USDA REEU Grant

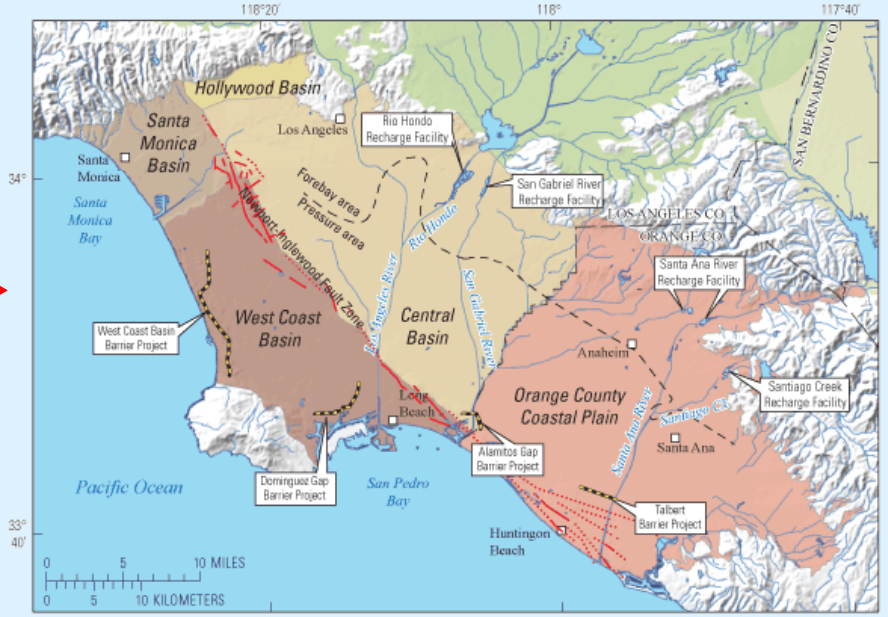


$750,000

TRAINING DIVERSE STUDENTS IN EXPERIENTIAL RESEARCH:

THE NEXUS BETWEEN URBAN NATURAL RESOURCES MANAGEMENT AND URBAN AGRICULTURE




118°20'
118°
117°40'
34°
33° 40'
Hollywood Basin
Santa Monica Basin
Los Angeles
Rio Hondo Recharge Facility
Santa Monica
Santa Monica Bay
Forebay area
Pressure area
Hollywood Fault Zone
Los Angeles River
Rio Hondo
San Gabriel River
San Gabriel River Recharge Facility
SAN BERNARDINO CO.
LOS ANGELES CO.
ORANGE CO.
Santa Ana River Recharge Facility
West Coast Basin Barrier Project
West Coast Basin
Central Basin
Anaheim
Long Beach
Orange County Coastal Plain
Santiago Creek Recharge Facility
Santa Ana River
Santiago Cr.
Santa Ana
Alamitos Gap Barrier Project
Dominguez Gap Barrier Project
Pacific Ocean
San Pedro Bay
Talbert Barrier Project
Huntington Beach
0 5 10 MILES
0 5 10 KILOMETERS


COLORADO RIVER BASIN
0mi 100
0km 200
Upper Colorado River Basin
Lower Colorado River Basin
Oregon
Idaho
UNITED STATES
Wyoming
Nebraska
Salt Lake City
Nevada
Utah
Denver
Colorado
Kansas
Lake Powell
California
Lake Mead
Las Vegas
Lees Ferry
Hoover Dam
Arizona
New Mexico
Los Angeles
Phoenix
San Diego
Texas
MEXICO
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DEPARTMENT OF ENERGY (DOE)
OFFICE OF SCIENCE (SC)
BIOLOGICAL AND ENVIRONMENTAL RESEARCH (BER)

$800,000

BER – REACHING A NEW ENERGY SCIENCES WORKFORCE (BER-RENEW)

FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER: DE-FOA-0002929

FOA TYPE: INITIAL
CFDA NUMBER: 81.049

SLAC NATIONAL ACCELERATOR LABORATORY
STANFORD SYNCHROTRON RADIATION LIGHTSOURCE

Kristin Boye, PhD
Staff Scientist
PI of SLAC Floodplain Hydro-Biogeochemistry SFA
Stanford Synchrotron Radiation Lightsource
SLAC National Accelerator Laboratory
2575 Sand Hill Rd., Bldg 137, MS 69
Menlo Park, CA 94025

February 16, 2023

Dear Dr. Hibbs,

If your proposal entitled "**Catalyzing STEM Training and Partnerships through Comparative Analysis of Transferable Watershed Function in East River and Southern California Watersheds**" is selected for funding under the DOE Funding Opportunity Announcement DE-FOA-0002929, it is my intent to collaborate in this research as an unfunded collaborator by facilitating access to our field sites in the greater East River (CO) watershed, providing guidance on sampling and experimental approaches, sharing of ancillary data to support this project, and introducing students to SLAC capabilities and science.

Thank you for the opportunity to participate.

Sincerely,

2575 Sand Hill Road • Mail Stop 69 • Menlo Park, CA 94025-7015
kboye@slac.stanford.edu • 650-889-8075 • Fax 650-926-4100
SLAC is operated by Stanford University for the U.S. Department of Energy

BERKELEY LAB
Earth & Environmental Sciences Area

Lawrence Berkeley National Laboratory

EARTH & ENVIRONMENTAL SCIENCES

February 16, 2023

Barry J. Hibbs
Professor of Hydrogeology
Department of Geosciences and Environment
California State University, Los Angeles
Los Angeles, CA 90032

Subject: Letter of collaboration for your proposal "Catalyzing STEM Training and Partnerships through Comparative Analysis of Transferable Watershed Function in East River and Southern California Watersheds", responding to DE-FOA-0002929.

Dear Dr. Hibbs,

As leads of the Berkeley Lab Watershed Function SFA, we are pleased to offer this letter of collaboration for your proposal, "Catalyzing STEM Training and Partnerships through Comparative Analysis of Transferable Watershed Function in East River and Southern California Watersheds" to be submitted to the DOE's Environmental System Science program.

We acknowledge all responsibilities identified for Berkeley Lab in this proposal. We will provide coordination of site access to relevant Berkeley Lab facilities, access to relevant datasets, adherence to safety plans, and integration of proposed research activities into the ongoing investigations associated with the Watershed Function SFA project.

Sincerely,

Eoin L. Brodie, PhD
Deputy Director, Climate & Ecosystem Sciences Division
Lead, Watershed Function Scientific Focus Area

Kenneth H. Williams, PhD
Chief Scientist, Watershed Function Scientific Focus Area

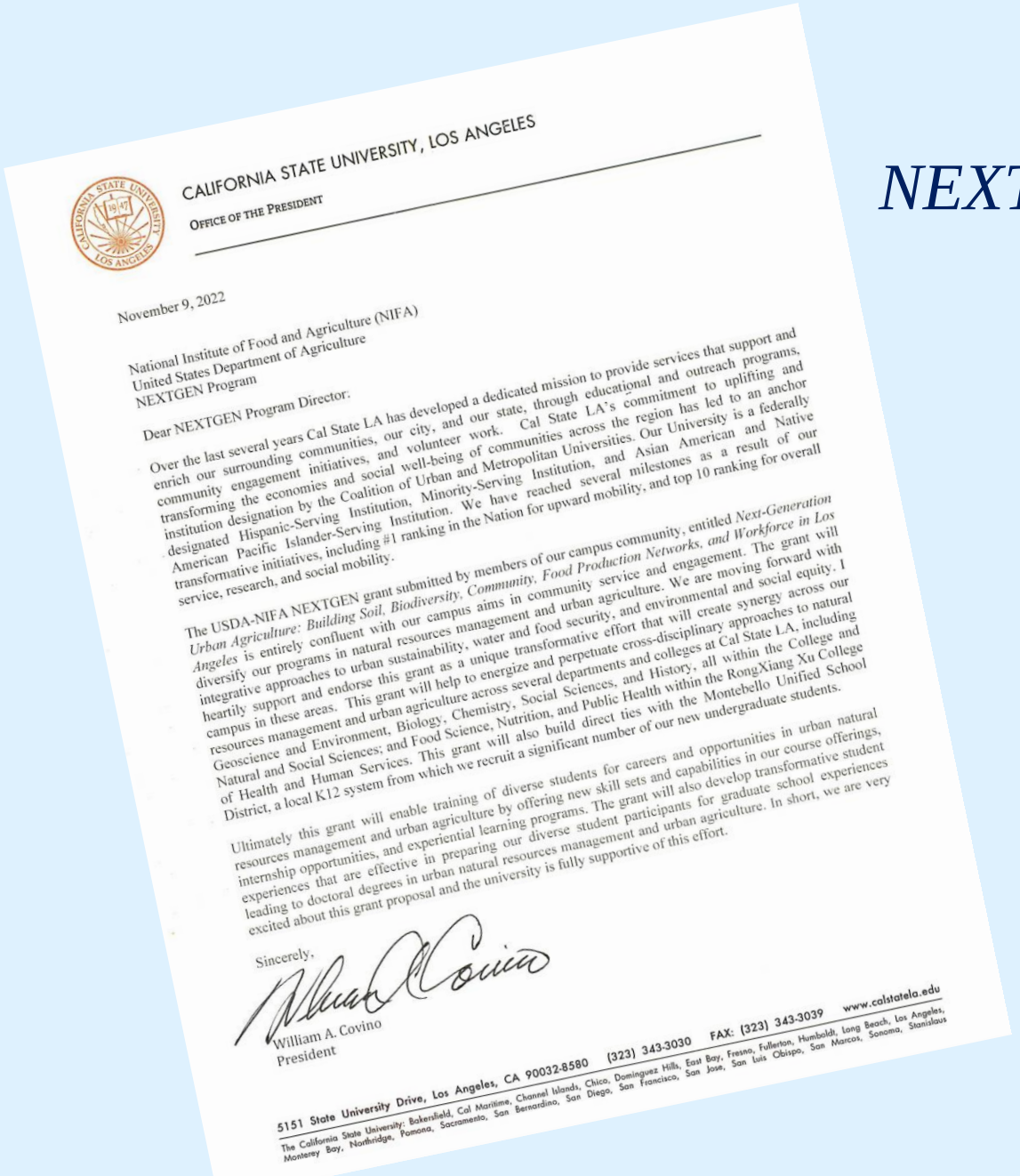
Michelle Newcomer, PhD
Deputy for Integration, Watershed Function Scientific Focus Area

Lawrence Berkeley National Laboratory
One Cyclotron Road / MS: 70A3317 / Berkeley, California 94720 / phone 510-486-6584 / fax 510-486-7152

Doc ID: c04dd6bf18ee7a6cf8e751f0b124798f0be37bee

Urban Agriculture and Natural Resources

USDA
NEXTGEN Grant



CALIFORNIA STATE UNIVERSITY, LOS ANGELES
OFFICE OF THE PRESIDENT

November 9, 2022

National Institute of Food and Agriculture (NIFA)
United States Department of Agriculture
NEXTGEN Program

Dear NEXTGEN Program Director:

Over the last several years Cal State LA has developed a dedicated mission to provide services that support and enrich our surrounding communities, our city, and our state, through educational and outreach programs, community engagement initiatives, and volunteer work. Cal State LA's commitment to uplifting and transforming the economies and social well-being of communities across the region has led to an anchor institution designation by the Coalition of Urban and Metropolitan Universities. Our University is a federally designated Hispanic-Serving Institution, Minority-Serving Institution, and Asian American and Native American Pacific Islander-Serving Institution. We have reached several milestones as a result of our transformative initiatives, including #1 ranking in the Nation for upward mobility, and top 10 ranking for overall service, research, and social mobility.

The USDA-NIFA NEXTGEN grant submitted by members of our campus community, entitled *Next-Generation Urban Agriculture: Building Soil, Biodiversity, Community, Food Production Networks, and Workforce in Los Angeles* is entirely confluent with our campus aims in community service and engagement. The grant will diversify our programs in natural resources management and urban agriculture. We are moving forward with integrative approaches to urban sustainability, water and food security, and environmental and social equity. I heartily support and endorse this grant as a unique transformative effort that will create synergy across our campus in these areas. This grant will help to energize and perpetuate cross-disciplinary approaches to natural resources management and urban agriculture across several departments and colleges at Cal State LA, including Geoscience and Environment, Biology, Chemistry, Social Sciences, and History, all within the College and Natural and Social Sciences; and Food Science, Nutrition, and Public Health within the RongXiang Xu College of Health and Human Services. This grant will also build direct ties with the Montebello Unified School District, a local K12 system from which we recruit a significant number of our new undergraduate students.

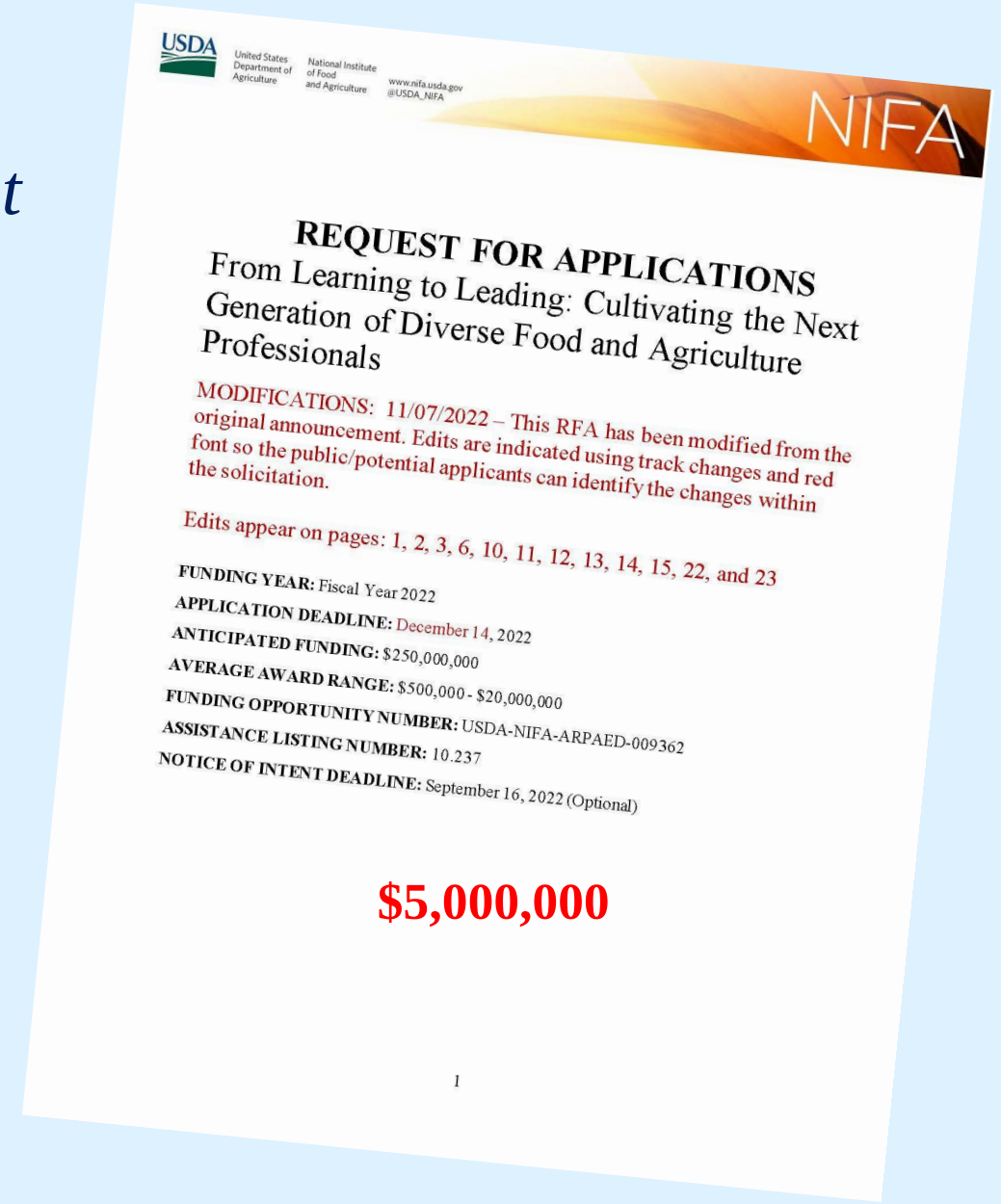
Ultimately this grant will enable training of diverse students for careers and opportunities in urban natural resources management and urban agriculture by offering new skill sets and capabilities in our course offerings, internship opportunities, and experiential learning programs. The grant will also develop transformative student experiences that are effective in preparing our diverse student participants for graduate school experiences leading to doctoral degrees in urban natural resources management and urban agriculture. In short, we are very excited about this grant proposal and the university is fully supportive of this effort.

Sincerely,

William A. Covino
President

5151 State University Drive, Los Angeles, CA 90032-8580 (323) 343-3030 FAX: (323) 343-3039 www.calstatela.edu

The California State University: Bakersfield, Cal Maritime, Channel Islands, Chico, Dominguez Hills, East Bay, Fresno, Fullerton, Humboldt, Long Beach, Los Angeles, Monterey Bay, Northridge, Pomona, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, San Marcos, Sonoma, Stanislaus



USDA United States Department of Agriculture | National Institute of Food and Agriculture | www.nifa.usda.gov @USDA_NIFA

NIFA

REQUEST FOR APPLICATIONS
From Learning to Leading: Cultivating the Next Generation of Diverse Food and Agriculture Professionals

MODIFICATIONS: 11/07/2022 – This RFA has been modified from the original announcement. Edits are indicated using track changes and red font so the public/potential applicants can identify the changes within the solicitation.

Edits appear on pages: 1, 2, 3, 6, 10, 11, 12, 13, 14, 15, 22, and 23

FUNDING YEAR: Fiscal Year 2022
APPLICATION DEADLINE: December 14, 2022
ANTICIPATED FUNDING: $250,000,000
AVERAGE AWARD RANGE: $500,000 - $20,000,000
FUNDING OPPORTUNITY NUMBER: USDA-NIFA-ARPAED-009362
ASSISTANCE LISTING NUMBER: 10.237
NOTICE OF INTENT DEADLINE: September 16, 2022 (Optional)

$5,000,000

1

Concluding Remarks

Key Points

- New integrative direction
- Cross fertilizes faculty and departments/colleges
- Community engagement
- Better health and nutrition
- Funding is available, but go for it now
- Careers for students

