

San Jose State University
College of Social Science
Environmental Studies Department
ENVS 129- 01

Water Policy in the Western US

FALL 2021

Instructor: Patrick T. Ferraro sjsu.edu/envs/ferraro
Office Hours: Tuesday, Thursday 12:00 pm to 12:30 pm via Zoom
Cell Phone: 408-293-1852
Preferred E-mail: PTFerraro5@gmail.com
Class Hours: Tuesday, Thursday, 12:30 – 1:45 PM
Classroom: SJSU.**Zoom.us**

Prerequisites: ENVS 001 or Instructor Consent.

Catalog Course Description:

Water resource development; federal reclamation policy; water law and water rights; interbasin transfers; Colorado River, Central Valley Project and State Water Project; groundwater overdrafting; agricultural water and water pricing

Course Format:

Students are expected to have completed reading assignments prior to class. Lecture will be supplemented with audio-visual media. A portion of each class will be spent as interactive discussion between instructor and students. Experts may be invited to some of the classes to augment the instructor's expertise. Field trips will be scheduled as time permits.

Students are required to use a computer or device connected to the Internet and use the Microsoft Office Suite, including current versions of Word, Excel and Microsoft.

Assignments will be posted on *Canvas Learning Management System course login website* at <http://sjsu.instructure.com> and be submitted by the due date and times listed. Assignments will also be emailed by due date and time to instructor at preferred email: ptferraro5@gmail.com Students are responsible for regularly checking with the messaging system through MySJSU on *Spartan App Portal* <http://one.sjsu.edu/>

Course Text:

With the multitude of topics and levels used to approach these subjects, one suitable textbook covering the entire course outline cannot be specified. Readings from pertinent Internet web sites will be assigned for each class topic. Students will be encouraged to search and review related links to supplement the information provided on the assigned sites and use the information to help generate discussions in the classroom.

The following printed materials are recommended and available for purchase through Amazon.com and for use in the MLK library in the reserve section:

1.) *[Water Justice](#) (Kindle Edition) \$49.60*

by Perreault, Tom, Boelens, Rutgerd

https://www.amazon.com/Water-Justice-Rutgerd-Boelens-ebook/dp/B079527S7D/ref=sr_1_14?Adv-Srch-Books-Submit.x=40&Adv-Srch-Books-Submit.y=6&dchild=1&keywords=Environmental+Justice%2C+Water&qid=1597772535&s=books&sr=1-14&unfiltered=1

2.) *Deadbeat Dams: Why We Should Abolish the U.S. Bureau of Reclamation and Tear Down Glen Canyon Dam* Paperback – March 1, 2015

by [Daniel P. Beard](#) (Author)

<http://www.amazon.com/Deadbeat-Dams-Should-Abolish-Reclamation/dp/1555664601>

Water Policy in the Western US

ENVS 129 Fall 2020 Syllabus

Patrick T. Ferraro, Instructor

What you will learn:

- How water rights are determined in California and other states.
- The processes available for conflict resolution when engineering decisions are in opposition to environmental regulation
- The roles and responsibilities of key state and federal environmental, land use and natural resource management agencies in water resources protection and flood management
- Financing options, common subsidies, and methods used for externalizing costs for water projects and setting water rates.
- Public participation requirements and strategies for successful water project campaigns
- To participate in the ongoing process of water policy development.

Grading

- 20% Classroom participation: includes written responses to 12 reading assignments and classroom discussion of assigned internet articles on topics of the week.
- 30 % Quizzes- 6 quizzes will be given about two weeks apart. Each quiz will be 5%
- 25% Paper - Each student will write up to 5000-word paper **summarizing student's participation in current local water issue**. Suggested topics will be offered, but students may select a topic of their own interest. **Topics are due on Sep. 2, 2020; Final Report Due Dec 7, 2020**. Report must follow requirements. (See rubric posted on Canvas for all due dates)
- 25% Final Exam. Take-home, essay style exam will be given two weeks prior to final class meeting and **due on day of final scheduled meeting on Dec. 9, 2020 12:00 PM.**

<i>A plus</i>	<i>960 to 1000</i>	<i>96 to 100%</i>
<i>A</i>	<i>930 to 959</i>	<i>93 to 95%</i>
<i>A minus</i>	<i>900 to 929</i>	<i>90 to 92%</i>
<i>B plus</i>	<i>860 to 899</i>	<i>86 to 89 %</i>
<i>B</i>	<i>830 to 829</i>	<i>83 to 85%</i>
<i>B minus</i>	<i>800 to 829</i>	<i>80 to 82%</i>
<i>C plus</i>	<i>760 to 799</i>	<i>76 to 79%</i>
<i>C</i>	<i>730 to 759</i>	<i>73 to 75%</i>

<i>C minus</i>	700 to 729	70 to 72%
<i>D plus</i>	660 to 699	66 to 69%
<i>D</i>	630 to 659	63 to 65%
<i>D minus</i>	600 to 629	60 to 62%

Writing for EnvS 129 and use of other sources

SJSU policy prohibits representing the work of another as your own. You must give appropriate credit through quotation and citation whenever you use the work of another. For footnotes, they can be at the end of the page, or the end of the paper. Any significant source, even if not quoted, should be listed in the paper. It is not appropriate to turn in a paper that is a collection of quotes; instead the vast majority of the paper should be your own writing.

The Writing Center in Clark Hall 126 offers tutoring services to San Jose State students in all courses. Writing Specialists assist in all areas of the writing process, including grammar, organization, paragraph development, coherence, syntax, and documentation styles. For more information, visit the Writing Center website at <http://www.sjsu.edu/writingcenter> or 924-2308.

Disabilities Policy

It is the policy of San Jose State University to provide appropriate accommodations to students who have documented disabilities meeting the eligibility requirements of the Americans With Disabilities Act of 1990. This website provides information on how students need to document disabilities: http://www.drc.sjsu.edu/student_services/document_disability.htm

The following University Policies also apply to this course:

- Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.
- Course calendar, which includes assignment due dates, quiz dates, date of final exam, is subject to change with fair notice.
- Policy S12-7 (Consent for Recording of Class and Public Sharing of Instructor Material)

“Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor’s permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study

purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”

- Permission can be obtained in writing or orally, for the whole semester or on a class by class basis.
- In classes, where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.

4) S12-7 “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

ENVS 129 *Water Policy in The Western US*

Patrick T. Ferraro, Instructor

(subject to change with fair notice)

Class Schedule	Topic
1. Aug 19	Introduction/ Overview of Course
2. Aug 24	<i>Participation</i> in the Development of Water Policy
3. Aug 26	Water Rights, Ecosystem Rights, Public Trust & Endangered Species Act
4. Aug 31	Watershed Protection
5. Sep 2	Groundwater Management

Policy Participation Topic Due

6. Sep 7	Surface Water Impoundments
7. Sep 9	Water Quality & Treatment - How Clean is Clean?
8. Sep 14	Urban Water Distribution, Public vs. Private Systems
9. Sep 16	Coastal & Marine Protection Quiz #1 Due
10. Sep 21	Urban Stormwater Management

11. Sep 23 Water for Agriculture, Ag Runoff
12. Sep 28 Water Pricing, Externalizing Costs **Quiz #2 Due**
13. Oct 5 Water Use Efficiency, Paying More For Less Water
-
14. Oct 7 Sewage Treatment & Water Factories
15. Oct 12 Water Recycling and Reuse
16. Oct 14 **Quiz #3 Due** Desalination and Privatization
17. Oct 19 Water Project Financing, Public Outreach **& Participation**
18. Oct 21 The Sacramento-San Joaquin Delta
19. Oct 26 Colorado and Columbia River Projects
-
20. Oct 28 **Quiz #4 Due** Owens Valley Water Project
21. Nov 2 Hetch Hetchy Water Project
22. Nov 4 Central Valley Project and San Felipe Division
23. Nov 9 Central Valley Project Improvement Act **Draft**
Policy Participation Report Due
-
24. Nov 11 SoCal & South Bay Water Recycling Projects
-
25. Nov 16 **Quiz #5 Due** Water & Power
26. Nov 18 Integrated Water Resources Planning, Sustainability and Carbon Footprints
-
27. Nov 23 International Water Issues & Projects
-
- Send Take-Home Final Exam**
28. Nov 30 Flood Protection, FEMA and Watershed Stewardship
29. Dec 2 Class Presentations **Quiz #6 Due**
30. Dec 7 Class Presentations **Policy Participation Report Due**
-
30. Dec 9 **Final Exam** Due by 12:00 PM

- Sign up for FREE subscription at <http://register.bcwaternews.com>

Water Education Foundation: <https://www.watereducation.org>

- [Trending, Aquaforia, Aquapedia, Water Academy](#)

California Institute for Water Resources

<http://ciwr.ucanr.edu>

UC Water Colloquium Video Library:

<https://www.youtube.com/playlist?list=PLCF0A91966F74204D>

DIRECTORY of Association of California Water Agencies:

<https://www.acwa.com/about/directory/>

Regulated Water Utilities in California

(private or Investor Owned water utilities)

<http://www.calwaterassn.com/about-cwa/regulated-water-utilities-in-california/>

2. Aug 24 Participation in Developing Water Policy

Environmental Justice Coalition for Water <https://ejcw.org>

The Citizen's Guide to Working with the California Water Boards (14.9 MB)

https://www.waterboards.ca.gov/publications_forms/publications/general/docs/citizenguide.pdf

Making Presentations Before the State Water Resources Control Board

http://www.swrcb.ca.gov/board_info/meetings/board_presentations.shtml

Successes and Failures in California Water Regulation

Gary Wolff, Vice Chair, California State Water Resources Control Board (1:19:00)

[California Colloquium on Water - Gary Wolff](#) (1:19:00)

<https://www.youtube.com/watch?v=tLWPylrrfJ0>

Environmental Defense Fund (EDF) Recommends Policy Reforms for California Water Market • *Reforms can help ecosystems and poor communities weather the drought, report says* May 3, 2016

<https://www.edf.org/media/edf-recommends-policy-reforms-california-water-market>

1. **Aug 26 Water Rights, Ecosystem Rights, Public Trust, Endangered Species Act**

Water Rights-California:

http://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.shtml

Public Trust: philosophical and legal implications for California's future; given by Joseph L. Sax, Professor, Boalt School of Law, UC Berkeley.(1:20:16)

[California Colloquium on Water: Sax](#)

Public Trust Doctrine: <https://www.watereducation.org/aquapedia/public-trust-doctrine>

Protecting Natural Capital & Ecosystem Services Using Public Trust Doctrine <http://ssrn.com/abstract=934393>

Text of TITLE 34 - CENTRAL VALLEY PROJECT IMPROVEMENT ACT

https://www.usbr.gov/mp/cvpia/title_34/

Text of Endangered Species Act

<https://www.fws.gov/ENDANGERED/laws-policies/esa.html>

Endangered Species Act, United States, Encyclopedia of Earth

https://editors.eol.org/eoearth/wiki/Endangered_Species_Act,_United_States

Video: **Ron Robie@ UC Berkeley** Water Colloquium: (1:09:52)

[California Colloquium on Water: Robie](#)

1. **Aug 31 Watershed Protection**

What is a Watershed?

<http://www.kcet.org/social/departures/lariver/confluence/river-notes/what-is-a-watershed-anyway.html>

Watershed Academy Webcast Archives

<https://www.epa.gov/watershedacademy/watershed-academy-webcast-archives>

Earth Focus Episode 39 – American Rivers: Challenges of the Colorado and Potomac (27:27/VIDEO)

[Earth Focus Episode 39 - American Rivers: Challenges of the Colorado and Potomac](#)

US Dept. of Agriculture, Natural Resources Conservation Service: Landscape Planning and Watershed Programs: <http://www.nrcs.usda.gov/Programs/watershed/>

Watershed Protection and Flood Prevention Act of 1954

http://en.wikipedia.org/wiki/Watershed_Protection_and_Flood_Prevention_Act_of_1954

5.Sep 2 Groundwater Management

What is Ground Water?

<http://pubs.usgs.gov/of/1993/ofr93-643/>

Selected Groundwater Issues

- * Artificial Recharge
 - * Freshwater-Saltwater Interactions along the Atlantic Coast
 - * Groundwater and Surface-water Interactions
 - * Karst
 - * Land Subsidence
 - * Unsaturated Zone
 - * Groundwater Networks
 - * Regional Groundwater Studies

Groundwater, Aquifers, Wells, and Springs

<https://www.usgs.gov/mission-areas/water-resources/science-topics/groundwater-aquifers-wells-and-springs>

Sustainability of Groundwater Resources

<http://water.usgs.gov/pubs/circ/circ1186/pdf/circ1186.pdf>

Water in Storage and Approaches to Ground- Water Management, High Plains Aquifer, 2003

https://pubs.usgs.gov/circ/2003/circ1243/pdf/C1243_v1.pdf

Groundwater Depletion Across Nation

[http://water.usgs.gov/pubs/fs/fs-103-03/JBartolinoFS\(2.13.04\).pdf](http://water.usgs.gov/pubs/fs/fs-103-03/JBartolinoFS(2.13.04).pdf)

Groundwater Loss and Aquifer System Compaction in San Joaquin Valley During 2012–2015 Drought

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6559157/>

Water follies: the environmental consequences of groundwater pumping given by Robert Glennon, Morris K. Udall Professor of Law and Public Policy, University of Arizona.(1:11:39)

[California Colloquium on Water: Glennon](#)

Managing groundwater resources given by David Todd, President, Todd Engineers and Professor Emeritus, UC Berkeley(1:02:58)

[California Colloquium on Water: Todd](#)

1. Sep 7 **Surface Water Impoundments**

Water Supply Forecasts:

<http://www.wcc.nrcs.usda.gov/wsf/>

US Water Use by category (2000) :

<http://water.usgs.gov/pubs/circ/2004/circ1268/htdocs/text-total.html>

Rotten foundations - the Reclamation Act and urbanization of the west - given by Gray Brechin, noted historian and author of *Imperial San Francisco: Urban Power, Earthly Ruin*. <http://graybrechin.net/>

[California Colloquium on Water: Brechin \(59:34\)](#)

<https://www.youtube.com/watch?v=HPETYHEtJwk>

When myth trumps history: the Reclamation Bureau and the family farm, 1902-1935 given by Donald Pisani, Merrick Professor of History, University of Oklahoma

[California Colloquium on Water: Pisani. \(1:31:10\)](#)

Big Dams of the New Deal Era:

http://books.google.com/books?id=XP5LkSQMM5QC&dq=Big+Dams+of+the+New+Deal+Era:+A+Confluence+of+Engineering+And+Politics&printsec=frontcover&source=bl&ots=DN05ukAk-p&sig=YukG6MBQ4pTC9w1hHyC0kVnZkZQ&hl=en&ei=w0h-SpnGDoWIswPT0LHvCg&sa=X&oi=book_resul

Save The Yampa River From Being Dam'd

[Save The Yampa River From Being Dam'd \(9:56\)](#)

Video of Grand Teton Dam Failure: [Teton Dam Collapse](#)

1. **Sep 9 Water Quality & Treatment**

Disinfection By-Products:

<https://www.cdc.gov/safewater/chlorination-byproducts.html>

1. **Sep 14 Urban Water Distribution: Public vs. Private Systems**

Water Distribution Power Point

http://galileo.phys.virginia.edu/classes/605.ral5q.spring04/lectures/water_distribution.pdf

Gold and Water in Them Thar Hills

<http://neverthirstpatferraro.blogspot.com/2008/09/flow-movie.html>

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Sep 16 Coastal Protection

California Colloquium on Water: Douglas

Saving the coast: A job that's never done; given by Peter Douglas, Executive Director, California Coastal Commission; Examines desalting plant impacts (1:22:21)

[California Colloquium on Water: Douglas](#)

Coastal Communities and the Blue Planet

Meg Caldwell, Woods Institute for the Environment, Stanford University (1:22:28)

[Coastal Communities and the Blue Planet](#)

1. **Sep 21 Urban Stormwater Management**

Strategy to Optimize Resource Management of Stormwater

https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/strategy_initiative/draft_revised_strategy.pdf

Low Impact Development – Sustainable Storm Water Management

http://www.waterboards.ca.gov/water_issues/programs/low_impact_development/index.shtml

Santa Clara Valley Urban Runoff Pollution Prevention Program (N Santa Clara Co.)

<https://scvurppp.org>

1. **Sep 23 Water for Agriculture, Ag Runoff**

The King of California: J.G. Boswell and the Making of A Secret American Empire

<https://www.amazon.com/King-California-Boswell-Making-American/dp/1586482815>

Mobile Lab To Improve Farm Irrigation Efficiency in Santa Clara County

<https://www.valleywater.org/saving-water/agriculture/mobile-lab-improve-farm-irrigation-efficiency>

Pollution from agriculture

<http://butane.chem.uiuc.edu/pshapley/Environmental/L33/2.html>

Tropical Storm May Have Kept Gulf 'Dead Zone' in Check,

By PAUL QUINLAN of Greenwire, August 1, 2011

<http://www.nytimes.com/gwire/2011/08/01/01greenwire-tropical-storm-may-have-kept-gulf-dead-zone-in-25367.html>

Nonpoint Source (NPS) Pollution: Forestry

<https://www.epa.gov/nps/nonpoint-source-forestry>

1. Sep 28 Water Pricing, Externalizing Costs

**What are "externalized" costs?
<https://www.natureandmore.com/en/true-cost-of-food/what-are-externalized-costs>**

<https://www.natureandmore.com/en/true-cost-of-food/what-are-externalized-costs>

Pricing and Affordability of Water Services

Affordability Assessment Tool for Federal Water Mandates

<https://www.awwa.org/Portals/0/AWWA/ETS/Resources/AffordabilityAssessmentTool.pdf>

Water Subsidies and Shortages in the American West

<https://mises.org/library/water-subsidies-and-shortages-american-west>

Federal Dollars Are Financing the Water Crisis in the West

May 28, 2015

<https://www.scientificamerican.com/article/federal-dollars-are-financing-the-water-crisis-in-the-west/>

1. Sep 30 **Water Use Efficiency:**

Paying More For Less Water and More Growth

6 Simple Ways to Bring the Water Revolution Home

https://www.yesmagazine.org/issues/water-solutions/6-simple-ways-to-bring-the-water-revolution-home?utm_source=junjul10&utm_medium=email&utm_content=subs&utm_campaign=6wysHd

US EPA Water Sense <https://www.epa.gov/watersense/how-we-use-water>

Valley Water District Conservation Programs

<https://www.valleywater.org/water-conservation-programs>

1. Oct 5 **Sewage Treatment & Water Factories**

How Do Wastewater Treatment Plants Work? (10:02)

<https://www.youtube.com/watch?v=FvPakzqM3h8>

BLUEPRINT for Onsite Water System (in San Francisco, CA)

<https://sfwater.org/modules/showdocument.aspx?documentid=6057>

Onsite Wastewater Treatment Systems Policy Implementation Program

https://www.waterboards.ca.gov/centralvalley/water_issues/owts/

San José-Santa Clara Regional Wastewater Facility

Behind the Flush: San José-Santa Clara Regional Wastewater Facility

[Behind the Flush: San José-Santa Clara Regional Wastewater Facility](#) (8:14)

Water and Wastewater Treatment Plant and System Operators

<https://www.bls.gov/ooh/production/water-and-wastewater-treatment-plant-and-system-operators.htm>

GHG Emissions from Treatment Plants: Video: Dr. Perry McCarty @UCBerkeley Water Colloquium (1:11:56)

[California Colloquium on Water - Perry L. McCarty](#)

<https://www.youtube.com/watch?v=15S4teA2l-M&feature=channel> (1:11:55)

1. **Oct 7** **Water Recycling and Reuse**

Video: *Water In an Endless Loop*, Water Reuse Association

<http://vimeo.com/9333749> (23:59)

Water Reuse and Recycling: Community and Environmental Benefits

<https://www.epa.gov/waterreuse>

NATIONAL WATER REUSE ACTION PLAN

Update on Collaborative Progress April 2021

<https://www.epa.gov/sites/default/files/2021-04/documents/wrap-update-on-collaborative-progress.pdf>

Water From Water - Recycling

<https://www.youtube.com/watch?v=2ViLv6Wv62A> (20:37)

10 Years of Recycled Water Deliveries to Coastal Farmers

<https://www.pvwater.org/media-items/news-releases/>

Grey Water Central: <http://www.oasisdesign.net/greywater/>

Laundry to Landscape Greywater System Installation

https://www.youtube.com/watch?v=eaHgvPj9_nA&feature=emb_logo (4:45)

1. **Water Reuse in SoCal (Irvine Ranch, Orange Co, West Basin) and Northern CA & South Bay Water Recycling Projects**

Recycled Water: Conveying the Message to Non-Water Experts; given by Roy Herndon, Chief Hydrogeologist, Orange County Water District

[California Colloquium on Water: Herndon](#)

<https://www.youtube.com/watch?v=gy7m1VZi90U> (1:27:48)

Planet LA - Water

https://www.youtube.com/watch?v=Mwppb_zCLJE&feature=related (9:45)

Title XVI - Water Reclamation and Reuse

<https://www.usbr.gov/watersmart/title/>

South Bay Water Recycling: <https://www.sanjoseca.gov/home/showdocument?id=32151>

South Bay Water Recycling Master Plan with Valley Water -2014

<https://www.valleywater.org/sites/default/files/335%20P3%20Related%20Reports%20SBWR%20Stratigic%20and%20Master%20Plan%20-%20Report%20%28Vol.1%29%20%281%29.pdf>

Audit: Recycled Water Program Needs More Financial Oversight

By ***Jennifer Wadsworth*** @jennwadsworth/ April 25, 2016

<https://www.sanjoseinside.com/news/audit-recycled-water-program-needs-more-financial-oversight/>

1. **Oct 12** **Desalination and Privatization**

Desalination, With a Grain of Salt: A California Perspective

Heather Cooley: Senior Researcher, Pacific Institute

[California Colloquium on Water - Heather Cooley](#)

<https://www.youtube.com/watch?v=HFvyxwzADd0> (1:15:05).

Desalination issues in the United States; given by Kevin Price, Manager of the Water Treatment Engineering Research and Development Group, U.S. Bureau of Reclamation.

[California Colloquium on Water: Price](#)

https://www.youtube.com/watch?v=neS_mX9GqJA (1:22:09)

San Jose Water Company's Merger With Connecticut Utility Sparks Bicoastal Bidding War

By [Jennifer Wadsworth @jennwadsworth](#)/ July 10, 2018

<https://www.sanjoseinside.com/2018/07/10/san-jose-water-companys-merger-with-connecticut-utility-prompts-bicoastal-bidding-war/>

SJW Group and Connecticut Water Service Merger Updates

<https://www.sjwgroup.com/sjw-group-stockholders-merger-information>

1. **Oct 14** **Water Project Financing, Public Outreach & Participation**

MWD

Video: [Thirst](#) <https://www.youtube.com/watch?v=6Hc6lDaWako&feature=related> (9:50)

Financing Resilient and Sustainable Water Infrastructure

<https://www.epa.gov/waterfinancecenter/financing-resilient-and-sustainable-water-infrastructure>

WATER FINANCE:

The Imperative for Water Security and Economic Growth

https://waterinthewest.stanford.edu/sites/default/files/Water_Finance_Water_Security_Economic_Growth.pdf

AB-2541 Safe Drinking Water State Revolving Fund: project financing: severely disadvantaged communities.

https://leginfo.legislature.ca.gov/faces/billHistoryClient.xhtml?bill_id=201720180AB2541

1. **Oct 19** **The Sacramento-San Joaquin Delta & The Peripheral Canal/CA WaterFix/EcoRestore**

Debating the Delta 56 min. PBS video Aired: 06/21/11

<http://vids.kvie.org/video/2017614881/>

Hell and high water in the Delta: The fate of California's water supply hub [California Colloquium on Water: Mount](#)

https://www.youtube.com/watch?v=0_VJyCHG-iE&feature=channel (1:12:56)

Confluence, Confusion, or Catastrophe: Prospects for Ending the Delta Stalemate

[California Colloquium on Water: John Cain](#) (1:26:08)

Sacramento-San Joaquin Delta: An Ecosystem & Water Delivery System in Crisis

[California Colloquium on Water - Richard M. Frank](#) (1:31:29)

Pat Ferraro Blog Posts:

<http://neverthirstpatferraro.blogspot.com/2008/06/fixing-sacramentosan-joaquin-delta.html>

<http://neverthirstpatferraro.blogspot.com/2009/05/another-challenge-for-henry-waxman-salt.html>

1. **Oct 21 Colorado and Columbia River Projects**

Grand Coulee Dam 70 Years Later: What can we learn Leonard Ortolano & Katherine Kao Cushing; 2002 Water Resources Development, Vol 18, No. 3, pages 373-390; Reprinted with permission in EnvS 129 Course Reader

Download/read reprint from EnvS 129 FA19 Canvas Module #10: Colorado & Columbia River Projects

1. **Oct 26** **Owens Valley Water Project**

Parts of Cadillac Desert Video Series:

Expansion of L. A. - destruction of Owens River & Valley

[Expansion of L. A. - Destruction of Owens River & Valley](#)

<https://www.youtube.com/watch?v=CN1VYCczw9U> (3:32)

Construction of the Owens Valley Project

[Construction of the Owens Valley Project](#)

<https://www.youtube.com/watch?v=QesBtxLwvWY&feature=fvw> (4:11)

Water & Power, Wm Kahrl, 1982, UC Press, Berkeley

[http://books.google.com/books?id=DH_hxwAD_2UC&dq=Water+and+Power+William+Kahrl &printsec=frontcover&source=bn&hl=en&ei=HRaLSsiMCISuswPjnczBDQ&sa=X&oi=book_r esult&ct=result&resnum=4 - v=onepage&q=&f=false](http://books.google.com/books?id=DH_hxwAD_2UC&dq=Water+and+Power+William+Kahrl&printsec=frontcover&source=bn&hl=en&ei=HRaLSsiMCISuswPjnczBDQ&sa=X&oi=book_r esult&ct=result&resnum=4 - v=onepage&q=&f=false)

1. **Oct 28** **Hetch Hetchy Water Project**

Temples of Water

<http://neverthirstpatferraro.blogspot.com/2008/08/temple-of-water.html>

Hetch Hetchy Valley: Water and California's Future; given by Sarah Null, Doctoral Student, Geography, UC Davis; Spreck Rosekrans, Economic Analyst, Environmental Defense; and Jay Lund, Professor of Civil and Environmental Engineering, UC Davis.

[California Colloquium on Water: Null, Rosenkrans and Lund](#)

<https://www.youtube.com/watch?v=8gHjGqzBqdQ&feature=related> (1:22:47)

Restore Hetch Hetchy

<https://www.hetchhetchy.org>

Discover Hetch Hetchy

[Discover Hetch Hetchy](#) (21:25)

U.S. Supreme Court

UNITED STATES v. CITY AND COUNTY OF SAN FRANCISCO, 310 U.S. 16 (1940)

<http://caselaw.lp.findlaw.com/scripts/getcase.pl?navby=case&court=us&vol=310&page=16> Supreme Court decision holding the City of San Francisco is violating the Raker Act by selling electrical power from the Hetch Hetchy dam.

San Francisco Should Pay Yosemite the Dam Rent

The century-old agreement between the city and the national park over the use of Hetch Hetchy Reservoir demands an update. [Sara Sutherland](#) October 29, 2020

<https://www.perc.org/2020/10/29/san-francisco-should-pay-yosemite-the-dam-rent/>

1. **Nov 2 Central Valley Project and San Felipe Division**

Effluent for the Affluent/Inside Poop of San Felipe Aqueduct

<http://neverthirstpatferraro.blogspot.com/2008/06/effluent-for-affluentinside-poop-on-san.html>

1. **Nov 9 Central Valley Project Improvement Act**

Central Valley Project Improvement Act (CVPIA)

<http://www.usbr.gov/mp/cvpia/>

Final Audit Report on the Central Valley Project Restoration Fund, Bureau of Reclamation

<https://www.govinfo.gov/content/pkg/GPO-DOI-IGREPORTS-98-i-383/html/GPO-DOI-IGREPORTS-98-i-383.htm>

2017 Draft CVPIA Annual Workplan

<https://www.usbr.gov/mp/cvpia/docs/cvpia-2017-awp-main-body-20170608-final-draft.pdf>

Alien invaders, endangered natives, and declining fisheries: a history of fish in the upper San Francisco estuary; given by Peter Moyle, Professor of Fish Biology, UC Davis.

[California Colloquium on Water: Moyle](#)

[California Colloquium on Water: Moyle](#) (1:08:16)

24. **Nov 11 SoCal and So SF Bay Water Recycling**

Water Reuse in SoCal (Irvine Ranch, Orange Co, West Basin) and Northern CA & South Bay Water Recycling Projects

25. **Nov 16 Water & Power**

LADWP In Crisis Video (8:03) [LA Department of Water and Power in Crisis](#)

SCVWD Failure to Develop Hydro Power:

<http://neverthirstpatferraro.blogspot.com/2008/07/water-and-power.html>

1. **Nov. 18 Integrated Water Resources Planning, Sustainability and Carbon Footprints**

A Clear Blue Future: How Greening California Cities Can Address Water Resources and Climate Challenges in the 21st Century<http://www.nrdc.org/water/lid/>

Report: Arid West Can Help Meet Its Water Needs While Reducing Energy Use

<http://www.nrdc.org/media/2009/090811.asp>

Nov 23 International Water Issues & Projects

Laying the groundwork for transboundary groundwater November 12, 2020

<https://twri.tamu.edu/news/2020/november/laying-the-groundwork-for-transboundary-groundwater/>

2013 Great Lakes Water Quality Report

https://legacyfiles.ijc.org/publications/16thBE_internet%2020130509.pdf

Nov 30 Flood Protection, FEMA and Watershed Stewardship

Fear of FEMA Revisited

<http://neverthirstpatferraro.blogspot.com/2009/01/fear-of-fema-revisited.html>

Federal Emergency Management Agency

From Wikipedia

http://en.wikipedia.org/wiki/Federal_Emergency_Management_Agency

Report: Criticism of FEMA's Katrina response deserved

<http://www.cnn.com/2006/POLITICS/04/14/fema.ig/index.html>

Smart Growth 2 (Flooding)

[FEMA - Smart Growth Part 2](#)

<https://www.youtube.com/watch?v=uAuGZ615TrM&feature=related> (6:40)

Smart Growth 3 (Flooding)

[FEMA - Smart Growth Part 3](#)

<https://www.youtube.com/watch?v=HaPoQO-aWQA&feature=channel> (6:40)

Smart Growth 4 (Flooding)

[FEMA - Smart Growth Part 4](#)

[FEMA - Smart Growth Part 4](#) (6:40)

29. Dec. 2 Class Presentations

30. Dec 7 Class Presentations

31. Dec 9 Final Exam Due 12:00 PM

Final Exam should be submitted by email to ptferraro5@gmail.com and posted on Canvas as MS Word file with .doc or .docx suffix