

**Environmental Studies 129  
Water Policy in the Western US  
Spring 2016**

Class Hours: Monday, Wednesday 1:30 – 2:45 PM  
Dudley Moorhead Hall, Rm 164

<a href="#">ENVS 129-01</a> (28236)	Water Policy in the West (Lecture)	25	MoWe 1:30PM - 2:45PM	Dudley Moorhead Hall 164	Jan 28, 2016- May 16, 2016
--	---------------------------------------	----	-------------------------	-----------------------------	-------------------------------------

Instructor: Patrick T. Ferraro

Office Hours: Monday, Wednesday 12:00 – 1:00 PM, Room WSQ 115A

Home Phone: 408-293-1852

E-mail: [PTFerraro5@gmail.com](mailto:PTFerraro5@gmail.com)

*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.

*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:

**Dam Nation: How Water Shaped The West And Will Determine Its Future  
by Steven Grace**

*First Edition Edition*

**SBN-13: 978-0762787623**

**ISBN-10: 0762787627**

<http://www.amazon.com/Dam-Nation-Shaped-Determine-Future/dp/0762787627>

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>

Course Web Page: <https://sites.google.com/site/envs129waterpolicysp2016/home>

## Water Policy in the Western US

EnvS 129

Patrick T. Ferraro, Instructor

Syllabus

### *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*

- 25% Classroom participation: discussion of internet articles on topics of the week.
  - Daily Water news posted on <http://www.bcwaternews.com/bcwn/California/CA082311.html>
  - **Please contact editor at [rhellmann@brwncald.com](mailto:rhellmann@brwncald.com) to subscribe free of charge.**
- 25% Quizzes- 6 quizzes will be given about two weeks apart. Each quiz will be 5%, but your lowest quiz score will be tossed.
- 25% Policy Development Participation Report - Each students will write up to 5000-word paper **summarizing student's participation in current local water issue**. This IS NOT simply a research project. **You must report on the contact you made to someone in authority or a group that can influence water policy**. Suggested topics will be offered, but students may select a topic of their own interest.
  - [Abstracts of Topics are due on Feb 22;](#)
  - [Draft reports are due April 27](#)
  - [Final Papers Due May 4](#)
  - Reports must follow paper requirements. (See below)
- 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.

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](http://www.drc.sjsu.edu/student_services/document_disability.htm)

The following University Policies also apply to this course:

1) Policy S12-3 “Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.”

2) Course calendar, which includes assignment due dates, quiz dates, date of final exam, is subject to change with fair notice.

3) 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.”

# **Water Policy in The Western US**

EnvS 129

Patrick T. Ferraro, Instructor  
(subject to change with fair notice)

Class Schedule	Topic
1. Feb 1	Introduction/ Overview of Class
2. Feb 3	<b>Participation</b> in the Development of Water Policy
3. Feb 8	Water Rights, Ecosystem Rights, Public Trust and Endangered Species Act
4. Feb 10	Watershed Protection
5. Feb 15	Groundwater Management
6. Feb 17 <b>Send Quiz #1</b>	Surface Water Impoundments
7. Feb 22	Water Quality & Treatment - How Clean is Clean?
8. Feb 24	Urban Water Distribution, Public vs. Private Systems
9. Feb 29 <b>Send Quiz #2</b> <b>Quiz #1 Due</b>	Coastal & Marine Protection
10. Mar 2	Urban Stormwater Management
11. Mar 7	Water for Agriculture, Ag Runoff
12. Mar 9 <b>Quiz #2 Due</b>	Water Pricing, Externalizing Costs
13. Mar 14 <b>Send Quiz #3</b>	Water Use Efficiency, Paying More For Less Water
14. Mar 16	Sewage Treatment & Water Factories
15. Mar 21	Water Recycling and Reuse
16. Mar 23 <b>Quiz #3 Due</b>	Desalination and Privatization
17. Apr 4 <b>Send Quiz #4</b>	Water Project Financing, Public Outreach & <b>Participation</b>
18. Apr 6	The Sacramento-San Joaquin Delta

19. Apr 11	Colorado and Columbia River Projects
20. Apr 13	Quiz #4 Due Owens Valley Water Project
21. Apr 18	Send Quiz #5 Hetch Hetchy Water Project
22. Apr 20	Central Valley Project and San Felipe Division
23. Apr 25	Central Valley Project Improvement Act
24. Apr 27	SoCal & South Bay Water Recycling Projects Draft PP Report Due
25. May 2	Quiz #5 Due Send Final Exam Water & Power
26. May 4	Send Quiz #6 Integrated Water Resources Planning, Sustainability and Carbon Footprints Final Policy Participation Report Due (late submissions accepted until May 9)
27. May 9	International Water Issues & Projects
28. May 11	Flood Protection, FEMA and Watershed Stewardship
29. May 16	Quiz #6 Due Student Presentations
30. May 18	Final Exam Due by 2:30 PM

Quizzes will be emailed to students and returned, when completed, by email only.

Quizzes will also be posted on Course Web Page:

<https://sites.google.com/site/envs129waterpolicysp2016/home>

**Reading Assignments**  
**ES 129 Water Policy in the West**  
Patrick T. Ferraro, Instructor

Class Schedule  
**1. Feb 1**

Topic/Online reading assignments  
**Introduction/ Overview of Class**

*Los Angeles, San Diego Reshaping California Drought Strategy*

<http://www.voanews.com/content/los-angeles-san-diego-reshaping-california-drought-strategy/3104927.html>

Thinking Globally: Water Distribution

<http://ga.water.usgs.gov/edu/waterdistribution.html>

<http://ga.water.usgs.gov/edu/watercyclesummary.html>

How Much Water Is There On Earth? Magellan Would Be Shocked

<http://www.npr.org/blogs/krulwich/2011/06/23/137346086/how-much-water-is-there-on-earth-magellan-would-be-shocked>

Water: <http://www.youtube.com/watch?v=73GKLVef90A&NR=1>

GOOD: Water:

<http://www.youtube.com/watch?v=HW5eBfZHE4M&feature=related>

Earth in the Balance: 7 Crucial Tipping Points by Jeremy Hsu, 02 March 2011

<http://www.livescience.com/13032-earth-7-tipping-points-climate-change.html>

Partial Text of The Great Thirst: Chapters on Aboriginal California & Spanish Settlement

[http://books.google.com/books?id=7CDVZL\\_AOBUC&dq=1.\)+The+Great+Thirst:+Californians+and+Water,+1770-1990+Hundley&printsec=frontcover&source=bl&ots=Qm0taQovnz&sig=d1VoMAq84Yc5ShGL2BHE-lpdsYs&hl=en&ei=e0iMSua5GlfSsgOJo6y7CQ&sa=X&oi=book\\_result&ct=](http://books.google.com/books?id=7CDVZL_AOBUC&dq=1.)+The+Great+Thirst:+Californians+and+Water,+1770-1990+Hundley&printsec=frontcover&source=bl&ots=Qm0taQovnz&sig=d1VoMAq84Yc5ShGL2BHE-lpdsYs&hl=en&ei=e0iMSua5GlfSsgOJo6y7CQ&sa=X&oi=book_result&ct=)

Good Water History Research Site

<http://wrca.library.ucr.edu/>

UC Water Colloquium Video Library:

<http://library.ucr.edu/wrca/about/ccow.html>

List of CA Water Agencies:

<http://library.ucr.edu/wrca/grants/districts.html>

## **2. Feb 3 Participation in Developing Water Policy**

Download

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

<http://www.acwa.com/news/water-news/guide-help-public-participate-water-planning-available>

Making Presentations Before the State Water Resources Control Board

[http://www.swrcb.ca.gov/board\\_info/meetings/board\\_presentations.shtml](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

<http://www.youtube.com/watch?v=tLWPylrrfJ0&feature=channel>

Environmental Justice Coalition for Water's Work Groups

<http://www.ejcw.org/About/workgroups.htm>

Water Reform in California/Environmental Defense Fund's Water Policy Reform Web Page

<http://www.edf.org/page.cfm?tagID=47523>

## **3. Feb 8**

### **Water Rights. Ecosystem Rights, Public Trust, Endangered Species Act**

Water Rights-California:

[http://www.waterboards.ca.gov/waterrights/board\\_info/water\\_rights\\_process.shtml](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.

<http://www.youtube.com/watch?v=ZfPXMlzthlc>

Public Trust Doctrine: <http://www.brayspapers.com/PTD.html>

Protecting Natural Capital & Ecosystem Services Using Public Trust Doctrine

<http://ssrn.com/abstract=934393>

Text of TITLE 34 - CENTRAL VALLEY PROJECT IMPROVEMENT ACT

<http://www.fws.gov/stockton/afrp/title34.cfm>

Text of Endangered Species Act

<http://wildlifelaw.unm.edu/fedbook/esa.html>

Endangered Species Act, United States, Encyclopedia of Earth

[http://www.eoearth.org/article/Endangered\\_Species\\_Act,\\_United\\_States](http://www.eoearth.org/article/Endangered_Species_Act,_United_States)

Bad for Species, Bad for People:  
What's Wrong with the Endangered Species Act and How to Fix It  
<http://www.ncpa.org/pub/st303>

Video: RonRobie @ UC Berkeley Water Colloquium: (1:09:52)  
<http://www.youtube.com/watch?v=Ssu47LziUMo&feature=channel>

#### **4. Feb 10** **Watershed Protection**

What is a Watershed?

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

Watersheds

<http://water.epa.gov/type/watersheds/index.cfm>

Earth Focus Episode 39 - American Rivers: Challenges of the Colorado and Potomac  
<http://www.youtube.com/watch?v=ktVVBUJnxA&feature=related> (27:27/VIDEO)

Federal Law: <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](http://en.wikipedia.org/wiki/Watershed_Protection_and_Flood_Prevention_Act_of_1954)

Federal Law Perspective:

Obstacles to Watershed Protection:

[http://findarticles.com/p/articles/mi\\_hb3153/is\\_n4\\_25/ai\\_n28666039/?tag=content;col1](http://findarticles.com/p/articles/mi_hb3153/is_n4_25/ai_n28666039/?tag=content;col1)

#### **5. Feb 15** **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

<http://water.usgs.gov/ogw/issues.html>

Sustainability of Groundwater Resources

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

Examples of Innovative Approaches that Contribute to Ground-Water

Sustainability <http://water.usgs.gov/pubs/circ/circ1186/html/boxg.htm>

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)

Study: San Jpaquin aquifers might be in danger. July 24, 2012

[http://www.recordnet.com/apps/pbcs.dll/article?AID=/20120724/A\\_NEWS/207240314/-1/rss02](http://www.recordnet.com/apps/pbcs.dll/article?AID=/20120724/A_NEWS/207240314/-1/rss02)

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

<http://www.youtube.com/watch?v=aU609axRws8&feature=channel>

***Managing groundwater resources*** given by David Todd, President, Todd Engineers and Professor Emeritus, UC Berkeley

<http://www.youtube.com/watch?v=vvLxJVihAR4&feature=channel>

## **6. Feb 17**

## **Surface Water Impoundments**

Water Supply Forecasts:

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

US Water Use by category:

<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/>

<http://www.youtube.com/watch?v=HPETYHEtJwk&feature=channel>

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

<http://www.youtube.com/watch?v=HnpInB5JfkU&feature=channel>

*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-SpnGDoWlswPT0LHvCg&sa=X&oi=book\\_resul](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-SpnGDoWlswPT0LHvCg&sa=X&oi=book_resul)

Save The Yampa River From Being Dam'd

<http://www.youtube.com/watch?v=HNGunnMllfQ>

***Coho salmon benefit from dam removal on San Mateo County coastal creek***

By Lisa M. Krieger 12/29/2015

[http://www.mercurynews.com/science/ci\\_29322478/coho-salmon-benefit-from-dam-removal-san-mateo](http://www.mercurynews.com/science/ci_29322478/coho-salmon-benefit-from-dam-removal-san-mateo)

Texas' Thirst for Dams Bucks National Trend, Wendee Holtcamp, Aug. 4, 2011

<http://www.miller-mccune.com/environment/texas-thirst-for-dams-bucks-national-trend-34541/>

Student Video: Failure of Grand Teton Dam: (Grade A)

<http://www.youtube.com/watch?v=kqCkyrin3bk&feature=related>

Student Video: Failure of Grand Teton Dam: (Grade B)

<http://www.youtube.com/watch?v=u2beeXgvQlk&feature=related>

Video of Grand Teton Dam Failure:

<http://www.youtube.com/watch?v=KEdM6Ys6spA>

**7. Feb 22**

**Water Quality & Treatment**

Chlorine by products:

<http://www.southerndatastream.com/thm/index.html> - Introduction

Restoration - Watershed Initiative Video

Urban Runoff P2: Southern CA marsh protection-20 minute thumb video:

[http://www.algalita.org/watershed\\_mov.html](http://www.algalita.org/watershed_mov.html)

**8. Feb 24**

**Urban Water Distribution,  
Public vs. Private Systems**

Water Distribution Power Point

[http://galileo.phys.virginia.edu/classes/605.ral5q.spring04/lectures/water\\_distribution.pdf](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>

## **9. Feb 29**

## **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

<http://www.youtube.com/watch?v=fvFZ5cqH9KM&feature=related>

Coastal Communities and the Blue Planet

Meg Caldwell, Woods Institute for the Environment, Stanford University

<http://www.youtube.com/watch?v=5qffYm46L5U>

## **10. Mar 2**

## **Urban Stormwater Management**

PRINCIPLES OF FLOOD MANAGEMENT AND FLOODPLAIN RESTORATION

<http://www.friendsoftheriver.org/fotr/BeyondFloodControl/no1.html>

<http://www.friendsoftheriver.org/fotr/BeyondFloodControl/no2.html>

<http://www.friendsoftheriver.org/fotr/BeyondFloodControl/no3.html>

<http://www.friendsoftheriver.org/fotr/BeyondFloodControl/no4.html>

CA Dept. of Water Resources Floodplain Management

<http://www.water.ca.gov/floodmgmt/lrafmo/fmb/>

Low Impact Development – Sustainable Storm Water Management

[http://www.waterboards.ca.gov/water\\_issues/programs/low\\_impact\\_development/index.shtml](http://www.waterboards.ca.gov/water_issues/programs/low_impact_development/index.shtml)

Urban Runoff Pollution Prevention Program/North Santa Clara County:

<http://www.scvurppp-w2k.com/default.htm>

## **11. Mar 7** Water for Agriculture, Ag Runoff

[http://www.nytimes.com/2015/12/31/us/farmers-try-political-force-to-twist-open-californias-taps.html?\\_r=3](http://www.nytimes.com/2015/12/31/us/farmers-try-political-force-to-twist-open-californias-taps.html?_r=3)

Cotton Farming in Tulare Lake: *King of California*

[http://books.google.com/books?id=QqIF0o8ZXx8C&dq=King+of+California%2BMark+Arax&printsec=frontcover&source=bl&ots=Qhd8iRRjbn&sig=zmdaLEWy6xRMfPrjndeTOqF9eV0&hl=en&ei=KReLSo6iCo7KsQPUyvDJDQ&sa=X&oi=book\\_result&ct=result&resnum=1#v=onepage&q=&f=false](http://books.google.com/books?id=QqIF0o8ZXx8C&dq=King+of+California%2BMark+Arax&printsec=frontcover&source=bl&ots=Qhd8iRRjbn&sig=zmdaLEWy6xRMfPrjndeTOqF9eV0&hl=en&ei=KReLSo6iCo7KsQPUyvDJDQ&sa=X&oi=book_result&ct=result&resnum=1#v=onepage&q=&f=false)

Ag water use Efficiency: SCVWD web page:

<http://www.valleywater.org/programs/agriculture.aspx>

*Opinion: Why California's drought matters*

Managing agriculture by government fiat puts the nation and world at risk

<http://www.washingtontimes.com/news/2015/dec/17/adam-putnam-why-californias-drought-matters/>

Pollution from agriculture

[http://www.naturegrid.org.uk/rivers/gt\\_stour\\_case\\_study\\_pages/plln\\_frm.html](http://www.naturegrid.org.uk/rivers/gt_stour_case_study_pages/plln_frm.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>

Pollution from Forestry

Lawmakers aim to overrule court on water runoff,

By STEVE BROWN, Capital Press, August 01, 2011

<http://www.capitalpress.com/oregon/SB-logging-runoff-080511-art>

## **12. Mar 9** Water Pricing, Externalizing Costs

Napa City Council to address water rate hike

[http://napavalleyregister.com/news/local/council-to-address-water-rate-hike/article\\_6a80f8f6-bcb8-11e0-80a3-001cc4c002e0.html](http://napavalleyregister.com/news/local/council-to-address-water-rate-hike/article_6a80f8f6-bcb8-11e0-80a3-001cc4c002e0.html)

Recycled Water Pricing/San Jose/SBWR:

<http://www.sanjoseca.gov/sbwr/rates.htm>

### **13. Mar 14** Water Use Efficiency: Paying More For Less Water and More Growth

Hi Tech Water Efficiency:

<http://www.sanjoseca.gov/esd/PDFs/SVMGfinalreport.pdf>

6 Simple Ways to Bring the Water Revolution Home

[http://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=6wysHdr](http://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=6wysHdr)

US EPA Water Sense <http://www.epa.gov/watersense>

### **14. Mar 16** Sewage Treatment & Water Factories

Wastewater Treatment: <http://ga.water.usgs.gov/edu/wwvisit.html>

Onsite systems/Austin: <http://www.ci.austin.tx.us/wri/faq.htm>

San Jose-Santa Clara WPCP: <http://www.sanjoseca.gov/esd/wastewater/water-pollution-control-plant.asp>

Treatment Plant Operators: Occupational Outlook Handbook, 2010-11 Edition

<http://www.bls.gov/oco/ocos229.htm>

GHG Emissions from Treatment Plants: Video: Dr. Perry McCarty @UCBerkeley

Water Colloquium: <http://www.youtube.com/watch?v=15S4teA2l-M&feature=channel>

### **15. Mar 21** Water Recycling and Reuse

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

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

Water Recycling and Reuse: The Environmental Benefits

<http://www.epa.gov/region9/water/recycling/>

US EPA Guidelines for Water Reuse

<http://www.epa.gov/ORD/NRMRL/pubs/625r04108/625r04108chap1.pdf>

Recycled Water Frequently Asked Questions

[http://www.pvwma.dst.ca.us/project\\_operations/recycled\\_water.shtml#q1](http://www.pvwma.dst.ca.us/project_operations/recycled_water.shtml#q1)

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

**16. Mar 23**

**Desalination and Privatization**

Desalination, With a Grain of Salt: A California Perspective

Heather Cooley: Senior Researcher, Pacific Institute.

<http://www.youtube.com/watch?v=HFvyxwzADd0>

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. [http://www.youtube.com/watch?v=neS\\_mX9GqJA](http://www.youtube.com/watch?v=neS_mX9GqJA)

Gold and Water in Them Thar Hills

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

Merger agreement: American Water Works will merge with a subsidiary of RWE AG

<http://www.aquamedia.at/templates/index.cfm/id/1461>

**17. Apr 4**

**Water Project Financing,  
Public Outreach & Participation**

MWD Video: *Thirst*:

<http://www.youtube.com/watch?v=6Hc6lDaWako&feature=related>

**18. Apr 6**

**The Sacramento-San Joaquin Delta &  
The Peripheral Canal**

California's Delta Water Blues, January 3, 2011m Miller-McCune  
<http://www.miller-mccune.com/science-environment/californias-delta-water-blues-26552/#>

Debating the Delta (56 min. PBS video)  
<http://vids.kvie.org/video/2017614881/>

Hell and high water in the Delta: The fate of California's water supply hub  
[http://www.youtube.com/watch?v=0\\_VJyCHG-iE&feature=channel](http://www.youtube.com/watch?v=0_VJyCHG-iE&feature=channel)

Confluence, Confusion, or Catastrophe: Prospects for Ending the Delta Stalemate  
<http://www.youtube.com/watch?v=QXhZZwtSrLk>

Sacramento-San Joaquin Delta: An Ecosystem & Water Delivery System in Crisis  
California Colloquium on Water - Richard M. Frank  
<http://www.youtube.com/watch?v=CkhkSPoF-WU>

VIDEO: Worries about peripheral canal dominate  
<http://www.centralvalleybusinesstimes.com/stories/001/?ID=19004>

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>

Saving the West Coast's Largest Estuary/EDF Delta Web Page  
<http://www.edf.org/page.cfm?tagID=574>

## **19. Apr 11** Colorado and Columbia River Projects *Drought in the Colorado River Basin*

<https://www.doi.gov/water/owdi.cr.drought/en/index.html#WaterSupply>

*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 reprint from 2011 EnvS 129 web site page Lecture #10: Colorado & Columbia River Projects: <https://sites.google.com/site/envs1292011waterpolicy/>

**20. Apr 13**

## **Owens Valley Water Project**

The Owens Valley Land Grab

<http://www.usc.edu/libraries/archives/la/scandals/owens.html>

Parts of Cadillac Desert Video Series:

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

<http://www.youtube.com/watch?v=CN1VYCczw9U>

Construction of the Owens Valley Project

<http://www.youtube.com/watch?v=QesBtxLwvWY&feature=fvw>

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\\_result&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_result&ct=result&resnum=4 - v=onepage&q=&f=false)

**21. Apr 18**

## **Hetch Hetchy Water Project**

Part 1: Rebuilding the Historic Hetch Hetchy Regional Water System

Paul Mazza and Daniel Jaimes — Dec 28, 2011

<http://www.trenchlessonline.com/index/webapp-stories-action/id.2038/title.part-1:-rebuilding-the-historic-hetch-hetchy-regional-water-system>

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.

<http://www.youtube.com/watch?v=8gHjGqzBqdQ&feature=related>

Restore Hetch Hetchy

<http://www.hetchhetchy.org/resources.html#education>

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.

Congressman Wants to Raise Hetch Hetchy Rent a Thousandfold

Proposal would increase San Francisco's annual fee to \$34 million from \$30,000

By John Upton, January 5, 2012

<http://www.baycitizen.org/water/story/raise-rent-hetch-hetchy-water/>

## **22. Apr 20** 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>

## **23. Apr 25** Central Valley Project Improvement Act

Central Valley Project Improvement Act (CVPIA)

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

Text of TITLE 34 - CENTRAL VALLEY PROJECT IMPROVEMENT ACT

<http://www.fws.gov/stockton/afrp/title34.cfm>

2012 Draft CVPIA Annual Workplans

[http://www.usbr.gov/mp/cvpia/docs\\_reports/awp/2012/index.html](http://www.usbr.gov/mp/cvpia/docs_reports/awp/2012/index.html)

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. [http://www.youtube.com/watch?v=5Ri2PF\\_u40I&feature=channel](http://www.youtube.com/watch?v=5Ri2PF_u40I&feature=channel)

## **24. Apr 27** Water Reuse in SoCal (Irvine, Orange Co, West Basin) 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

<http://www.youtube.com/watch?v=gy7m1VZi90U>

Planet LA – Water

[http://www.youtube.com/watch?v=Mwppb\\_zCLJE&feature=related](http://www.youtube.com/watch?v=Mwppb_zCLJE&feature=related)

US Bureau of Reclamation Awards More Than \$2 Million to Fund 13 Title XVI Feasibility Studies in the San Francisco Bay Area, August 01, 2011

<http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=36943>

South Bay Water Recycling: <http://www.sanjoseca.gov/sbwr/>

Rules and Regulations:

<http://www.sanjoseca.gov/sbwr/rulesandregulations.htm>

## **25. May 2** Water & Power

LADWP In Crisis Video; <http://www.youtube.com/watch?v=67UxjCrjeao&feature=related>



Smart Growth 2 (Flooding)

<http://www.youtube.com/watch?v=uAuGZ615TrM&feature=related>

Smart Growth 3 (Flooding)

<http://www.youtube.com/watch?v=HaPoQO-aWQA&feature=channel>

Smart Growth 4 (Flooding) <http://www.youtube.com/watch?v=hecs9BzwH00&feature=channel>

**29. May 16**

**Student Presentations**

**May 18 Final Exam Due between 12:15 PM and 2:30 PM on Friday, May 18**

Final Exam should be submitted by email only to [ptferraro5@gmail.com](mailto:ptferraro5@gmail.com) as MS Word file with .doc or .docx suffix