

California Naturalist – Homework – Chapter 3 -- Water

We employ a somewhat different approach to homework. The intention of this approach is to foster greater engagement with the course material and cultivate wonder and curiosity. You are also encouraged to review the standard homework/study questions prepared by the UCANR California Naturalist Program and request instructor clarification of anything you're not sure about. You may opt to answer and submit these standard questions for each chapter instead of Sierra Stream's assignment. See below for a link to the PDF with those questions for all the chapters. NOTE: the PDF has not downloaded properly for some people. If this happens to you, please email cnssi@sierrastreamsinstitute.org and we'll send it to you via email.

HOW TO SUBMIT HOMEWORK ASSIGNMENTS

- Create a new email with subject line: CNat-Class x-FirstName LastName

For example: CNat-Class 1-Jane Goodall

- Then either attach your completed homework or paste it into the body of the email.

Submissions WILL ONLY BE OPENED IF they meet these criteria.

- Email your homework to the following email address:

cnssi@sierrastreamsinstitute.org

BEFORE CLASS

- Read chapter 3 in the textbook - you may do the homework as you go if you wish.
 - Class content will build on the readings and PDFs throughout the course.

Optional before class:

- EXPLORE our class website: <https://cnssi.wordpress.com>. This will be ever-evolving. Please note that the info is located in the drop down options.
- View this PDF (originally a PowerPoint):

https://cnssi.files.wordpress.com/2018/03/chatperthree_v1.pdf

HOMEWORK ASSIGNMENT #5

You will get the most out of the in-class experience if you have done your homework each week before class begins.

The homework for every chapter in the book will be to engage as described below. If you prefer a more traditional homework approach you may INSTEAD submit answers to the standard homework/study questions prepared by the UC California Naturalist Program. See below.

Your Name _____

Homework for Class # _____ ~ Chapter # _____ ~ Topic

ENGAGE with material from reading and PDF by briefly noting:

• ***Two things that caught your attention. What interested you? Why?***

1.

2.

• ***Two questions that come to mind about the material. What are you curious about?***

1.

2.

• ***One or two things you'd love to share with someone. Share it if you can!***

1.

2.

• *Was there anything that was confusing, or about which you'd like more info or clarification?*

EVALUATE

• What has worked well so far in the California Naturalist course at SSI?

• Opportunities for change?

• Anything else?

Chapter 3 – Water - UC California Naturalist Program Standard Homework/Study Questions

Below are the standard homework/study questions prepared by the UC California Naturalist Program for Chapter 5. You are encouraged to review these and request instructor clarification of anything you're not sure about.

You may opt to answer and submit these standard questions for each chapter instead of the homework described above.

*This PDF contains study questions for all the chapters in the textbook:
https://cnssi.files.wordpress.com/2015/02/cal-nat-handbook_all-chapters_questions-and-study-guide.pdf*

Chapter 3 - Water

1. *What is unique about the water molecule?*
2. *How much of the world's water is found in the oceans, bound up in ice, or as "freshwater?"*
3. *Draw the water cycle in a way that helps you understand and remember how water moves through the landscape, waterways, and air.*
 - a. *Where does 60% of the water flow go?*
 - b. *What happens to the remainder of the water?*
 - c. *How does snow pack influence water storage and seasonal streamflow patterns? Rain on snow events?*
4. *What is the difference between an aquaclude and an aquifer?*
5. *What are endorheic or internal basins, and where do we find them in California?*
6. *How do salts accumulate in these basins?*
7. *Why is the southern part of the Central Valley considered to be an alkaline basin?*
8. *Our three biggest natural lakes in California are the Klamath Lake, Lake Tahoe, and Clear Lake. What is unique about each of these lakes?*
9. *How do we classify streams within watersheds? How is this useful?*
10. *Stream inputs (biological, chemical and physical):*

- a. *Biological inputs include what kinds of materials?*
 - b. *What benefits do woody debris provide?*
 - c. *What kinds of chemical inputs are important for stream processes?*
 - d. *How do these inputs impact food webs?*
 - e. *What happens when stream systems and watersheds become eutrophic?*
 - f. *What is the difference between alluvial vs. colluvial forces in moving stream sediments around?*
 - g. *How are sediments moved within a watershed?*
 - h. *What are the causes and consequences of increased sediment loads in streams?*
11. *What is a typical pathway for a watershed to move through a landscape? What kinds of formations are common in what parts of the watershed?*
12. *What is a floodplain, and how are flooding regimes important for soils and wetlands?*
13. *Estuaries:*
- a. *How are estuaries formed, and what is unusual about them in terms of habitat?*
 - b. *Are they oligotrophic or eutrophic?*
14. *The intertidal zones are rich with biodiversity. What factors drive that biodiversity?*
15. *What factors influence the high numbers of endemic freshwater fish species found in California?*
- How do precipitation and streamflow patterns influence that diversity?*
16. *What factors are threatening the survival of many of California's freshwater fish species?*
17. *What are some of the big changes that humans have made in the last 150 years to California's watersheds?*
18. *How do dams change water flows and temperatures?*

19. *What do levees do to streamflow and how do they affect floodplain hydrology?*
20. *What kinds of changes have occurred in the San Francisco Bay Delta over the last 150 years?*
21. *How do the many small water catchments in the upstream parts of watersheds impact streams?*
22. *How is CA state water law changing?*
23. *What are some of the challenges we face in terms of water use in California in the future?*