California's AMAZING Delta

What is the Delta?

The Sacramento-San Joaquin Delta is where the **Sacramento River** water flowing south meets the **San Joaquin River** flowing north. The two rivers mingle with rivers of smaller **watersheds** to form a 700-mile-long maze of rivers and sloughs surrounding over 50 islands, most of them agricultural.

No other single area is quite as crucial to the state's overall water picture as the Delta—it is a hub of California's two largest water projects. Its existing channels are used to provide the water needs of the Delta and surrounding areas as well as to transport water to federal and state pumps in the southern Delta.

Why is the Delta Important to us?

The Delta delivers fresh water crucial to California's water supply. It provides drinking water for over 22 million people. It supports California's trillion-dollar economy, including its $27 billion agricultural industry. The Delta's channels transport water south to California's two largest water delivery systems: the **Delta-Mendota Canal** and the **California Aqueduct**. Delta **levees** protect farms, homes, and infrastructure. The Delta also supports important habitat for many species that rely on this unique area where fresh water meets salty ocean water, called an **estuary**. The brackish marshes and the San Francisco Bay allow the Delta to form the largest estuary on the west coast—home to 750 plant and animal species.

Water Quality and the Delta

The Delta has historically been at the mercy of the river **flood** flows and **tidal** influences. Although upstream **dams** help control floods today and help regulate Delta **salinity**, the salty ocean water can creep up Delta channels when mountain **runoff** releases from **reservoirs** slow down. But when water is flowing strong, like during the winter or spring when there is a heavy runoff from the mountains, this outward flow keeps the sea water out of the Delta.

These waters flow west through the Delta and San Francisco Bay to the ocean, holding back the salt waters of the Bay and protecting water quality for consumption, recreation, and farming.
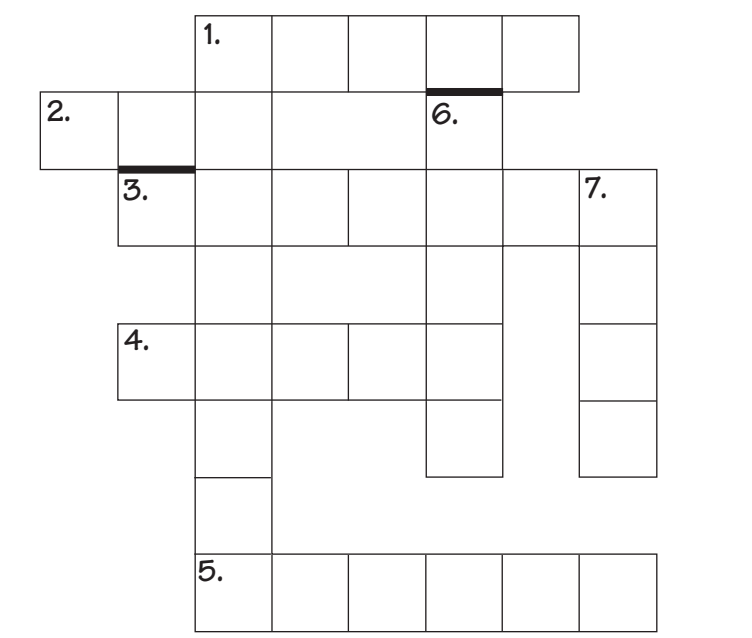
The Delta Dilemma

Straining under dual roles as critical habitat and serving water project needs, the Delta is in decline from decades of competing demands and struggles to function as a healthy **ecosystem** and as a reliable source of water.

Finding Solutions

Because so many people—and other living things—depend upon the Delta, we need input and cooperation from many different groups to help find solutions to restore the Delta. Government agencies dedicated to improving the Delta rely on information from biologists, engineers, water companies, farmers, Delta residents, and other government agencies to come up with plans that will restore the Delta's ecological health and improve its ability to reliably supply clean water for drinking, agriculture, and other needs.

Who's Thirsty?

California needs water, not only for us humans to drink, but also to sustain wildlife, crops, and industry. Try to find some of these thirsty characters:

- A high-flying fowl cruising the Pacific Flyway
- A leafy legume
- A famous mouse
- A bony bovine
- A sun-loving musician

Can you also find these important water features?

- The Sacramento-San Joaquin Delta
- The route water takes from Shasta Lake and Lake Oroville to Southern California
- A watershed (hint: this is *not* a watershed)

Delta Word Search

```
G R A Q U E D U C T I
S A N J O A Q U I N S
C S A L M O N G F S A
A M D E D T A D L T C
L O R E S E R V O I R
F L O O D P L F T D A
L L M I G R A T E A M
E S O R Q U I W A L E
V R U N O F F O N E N
E O S A L I N I T Y T
E C O S Y S T E M C O
```

Find these words:
ANADROMOUS, AQUEDUCT, DAM, DELTA, ECOSYSTEM, FLOOD, LEVEE, MIGRATE, SAN JOAQUIN, RESERVOIR, RUNOFF, SACRAMENTO, SALINITY, SALMON, SPAWN, TIDAL
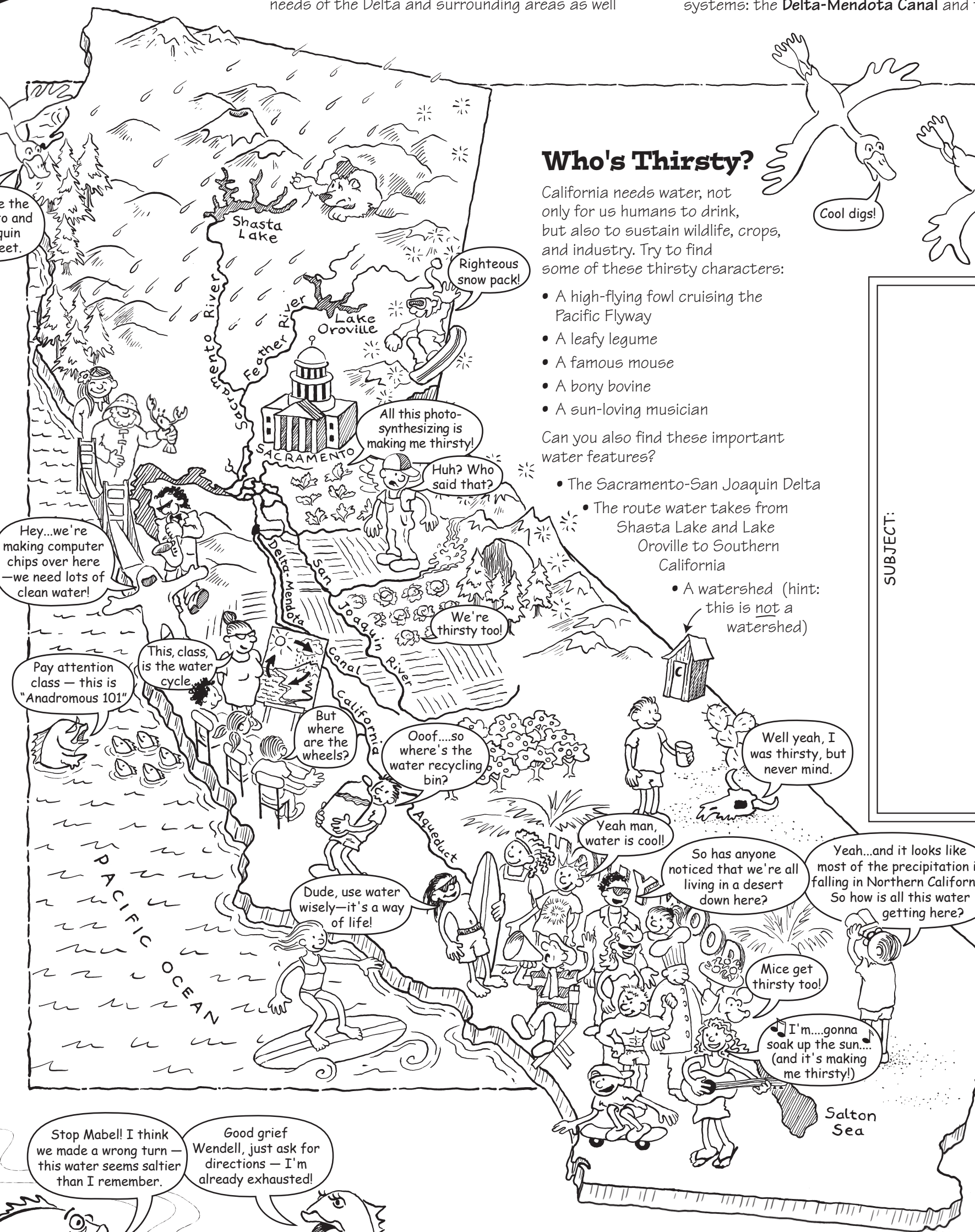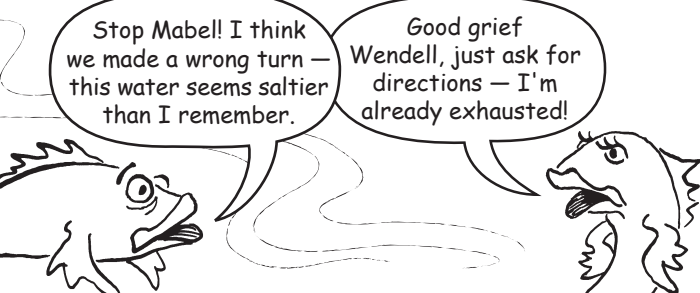
Which Way Did They Go?

Salmon are a species of fish that are born in fresh water, but **migrate** to the salt water oceans where they spend most of their adult life. These fish are called **anadromous**.

When salmon are ready to lay their eggs, or **spawn**, the Delta provides a route for them as they travel back to the exact Central Valley stream where they were hatched, whether north or south of the Delta.

As water mixes in the Delta, finding their "home" can be very confusing. The water in the Delta changes with storm runoff, dam releases, and the tide. It is amazing how thousands and thousands of salmon can navigate through this area successfully.

Understanding Salmon Migration

How long do salmon stay in the Delta before traveling to their spawning grounds? When are they moving? What are their obstacles? These are just some of the questions that scientists try to answer. When we know what salmon need, we can help them better.

For example, one recent study tagged 332 adult salmon and released them in two locations in the Delta. The salmon are tagged on their fin and also by placing a monitoring device inside their belly. The data collected determine the direction and times that the salmon travel. The results tell us that the fish are taking unexpected turns, sometimes in the wrong direction!

Helping the Salmon

Because the salmon store up their fuel and use it while migrating, if anything delays the salmon, they may use up their fuel too soon—and not have enough to make it home.

These studies are important to better understand how fish get safely past obstacles and see how they interpret the change in water flows that we have created so they can make their journey home, spawn, and allow a new generation of salmon to flourish.
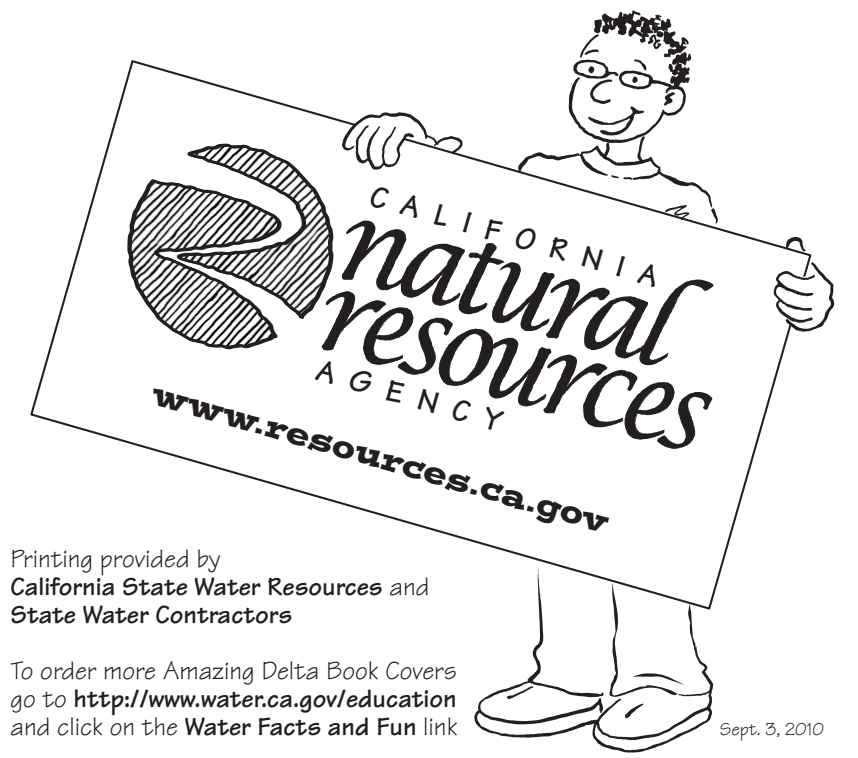
Water Crossword

ACROSS

1. A man-made waterway, like the Delta-Mendota _____.
2. The scientific compound for water: _____.
3. An estuary is a unique and rich habitat containing many different plants and _____.
4. A _____ prevents floodwaters from spilling over the banks of rivers or channels.
5. The sun is the _____ source that drives the water cycle.

DOWN

1. Water recycling is one way to _____ water.
6. An area defined by a system of rivers and their tributaries is called a _____ shed.
7. Brackish marshes, like the Suisun, form where fresh water mixes with _____ water from the ocean.

It's no secret...water is wonderful!

Use this code to fill in the message

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

___ ___ ___ ___ is a ___ ___ ___ ___ ___ ___ ___ of all the people of California

and must be ___ ___ ___ ___ ___ ___ for the ___ ___ ___ ___ ___ ___ ___ of all.