CLASSROOM AQUARIUM EDUCATION PROGRAM

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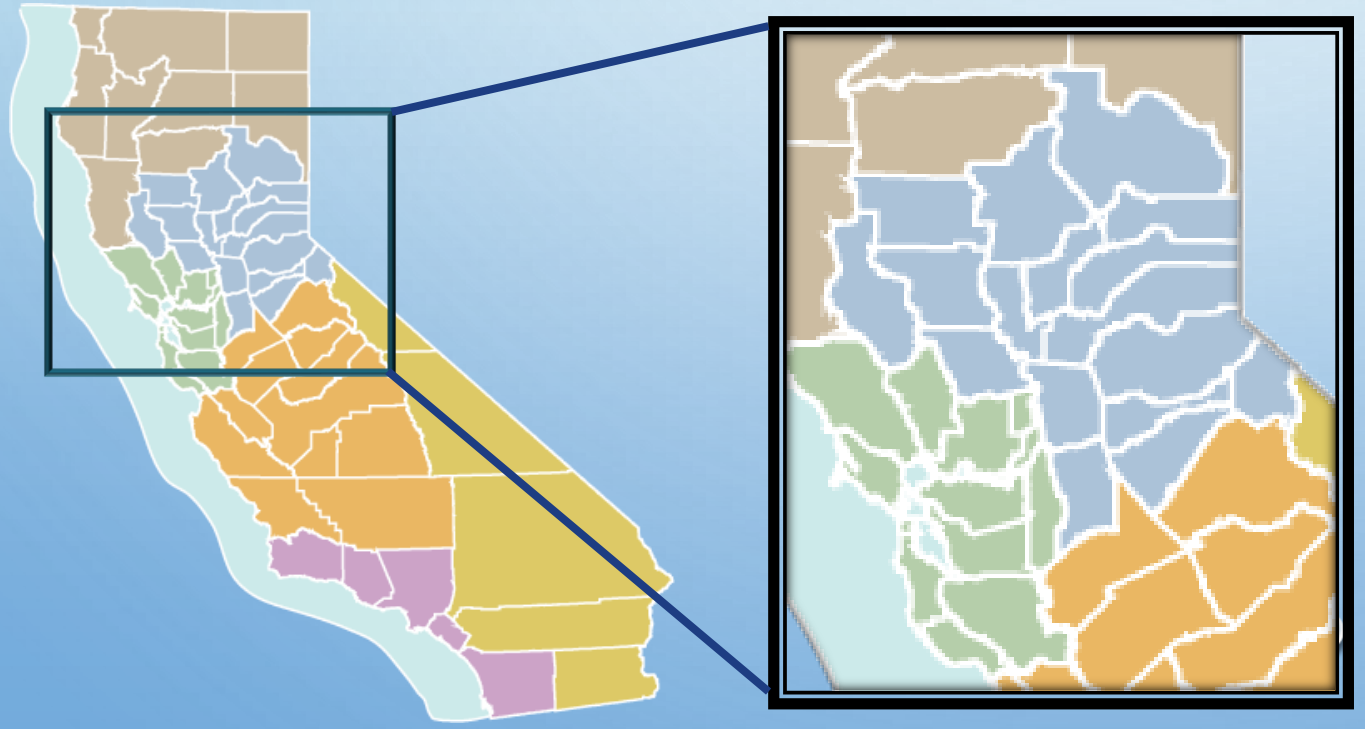
R2 NORTH CENTRAL REGION

WHO ARE WE?

- Classroom Aquarium Education Program(CAEP) is run through California Department of Fish and Wildlife(CDFW) and is offered statewide in partnership with regionally based community organizations. With the help of these partners we have given thousands of children the opportunity to have hands on experience with one of our earths precious natural resource.



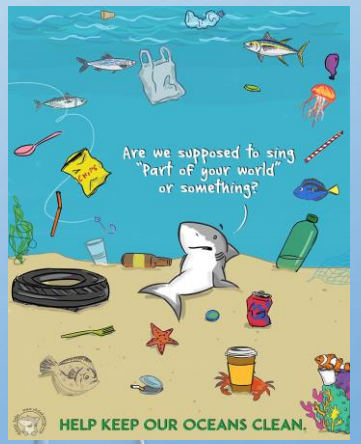
CLASSROOM AQUARIUM EDUCATION PROGRAM GOALS

CAEP's main goals are:

- To teach children of all ages the value of aquatic environments.

- To demonstrate the balance that must be achieved to maintain and preserve California's fisheries and aquatic resources.

- Demonstrate how individual actions can have an impact on our natural recourses.



A BRIEF HISTORY OF CLASSROOM AQUARIUM EDUCATION PROGRAM

1970'S

"Fish in the classroom" originated in British Columbia in the late 1970's.

1980'S

In the 1980's, a group of educators established the first programs in California.

2000 TO PRESENT

The program is regulated through CDFW

In 2000, CDFW created a statewide committee to provide greater support and assistance to the community partners.

Start of National Fish Hatchery System

Establishment of National Fish Hatchery System(NFHS)

- 1870 President Ulysses S. Grant established the first "spawning stations" in response to declining fisheries populations.

FIG. 42. Spawning operations at Klamathon. E. V. Cassell, taking eggs from a female king salmon. Photograph by E. A. McGregor.

- 1871 Grant commissioned the first director of NFHS. Spencer Fullerton Baird

First Fish Hatchery Built in United States.

- 1872 the Baird Fish Hatchery was built on the McCloud River. Making it the first of its kind to be built in the U.S

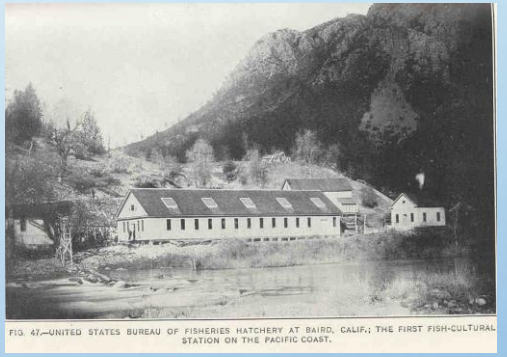


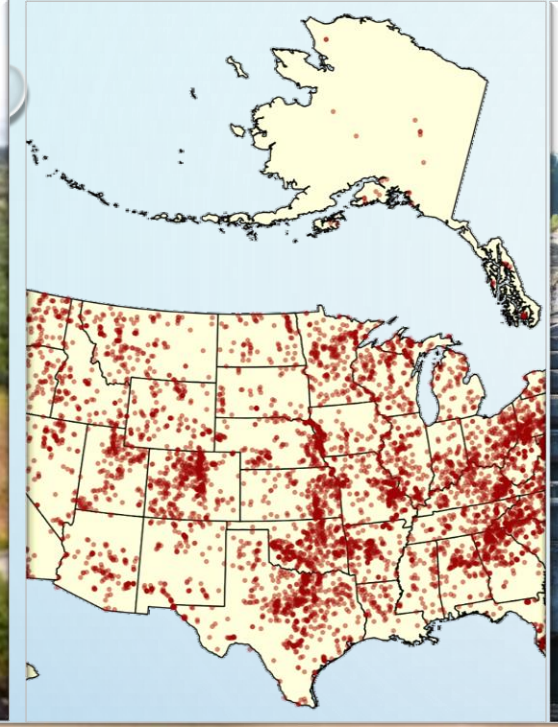
FIG. 47.—UNITED STATES BUREAU OF FISHERIES HATCHERY AT BAIRD, CALIF.; THE FIRST FISH-CULTURAL STATION ON THE PACIFIC COAST.

- In the years to follow many more hatcheries arose all over the country. To supplement the decline in natural fish populations due to human interference.

WHY DO WE HAVE FISH HATCHERIES?

HATCHERY PURPOSE:

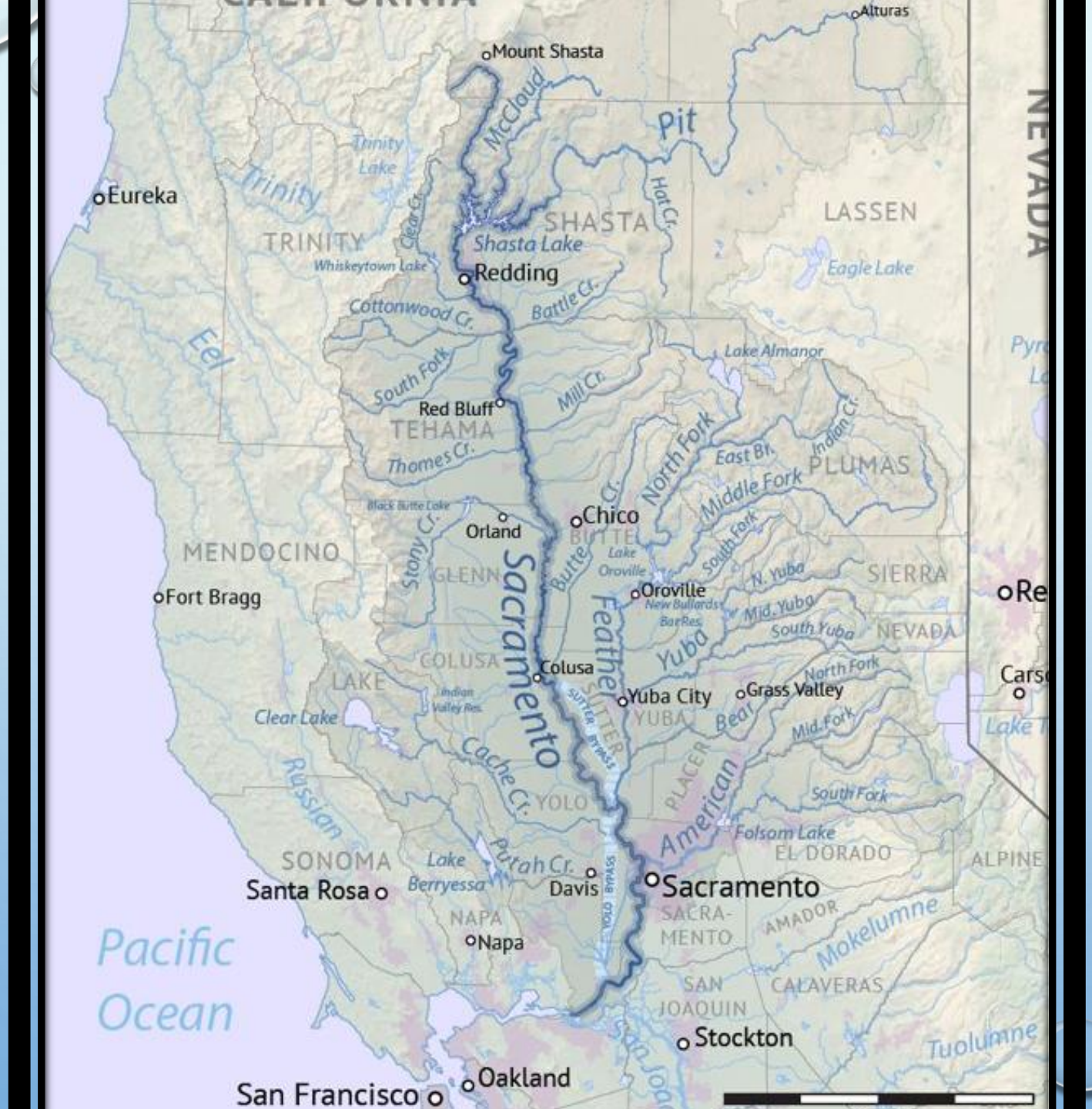
- **Produce and release juvenile fall and spring Chinook Salmon and Steelhead trout.**
- **Mitigate for lost habitat, and spawning grounds due to the construction of Dams**
- **Provide fish for commercial and recreational fishing**
- **Provide eggs for the Classroom Aquarium Education Program**
- **Minimize ecological and genetic impacts to all fish populations.**



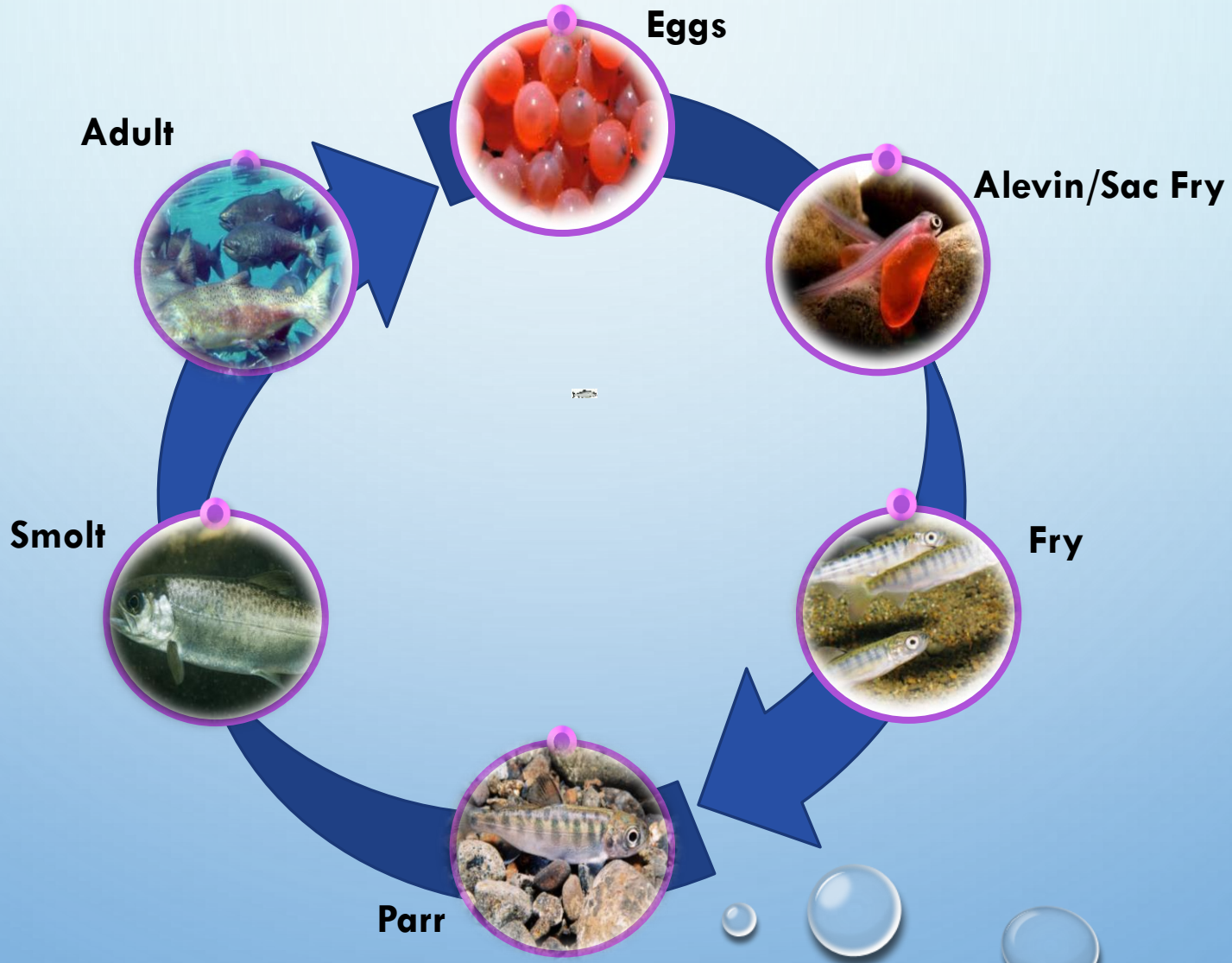
DAMS

- Throughout history Humans have been building dams to provide water and power for growing populations.
- The first “New World” Dam can be dated back to 1640 in Situate, Massachusetts. Hundreds followed as settlements spread across the nation.
- Between 1920 and 1980, 50,000 new dams were added to waterways across the country.
- Thousands of miles of fisheries habitat were cut off to historic runs of Anadromous fish. Creating and overwhelming need for fish hatcheries.


WHAT IS YOUR SALMON CONNECTION?


Alturas
Mount Shasta
McCloud
Pit
Trinity Lake
Trinity
Eureka
Clear Cr.
Hat Cr.
SHASTA
LASSEN
TRINITY
Shasta Lake
Whiskeytown Lake
Redding
Eagle Lake
Cottonwood Cr.
Battle Cr.
Eel
South Fork
Lake Almanor
Mill Cr.
Red Bluff
TEHAMA
Thomes Cr.
North Fork
East Br.
Indian Cr.
PLUMAS
Middle Fork
Black Butte Lake
Chico
Orland
Stony Cr.
Butte Cr.
Lake Oroville
South Fork
MENDOCINO
GLENN
Sacramento
Feather
Oroville
N. Yuba
SIERRA
Fort Bragg
New Bullards Bar Res.
Mid. Yuba
South Yuba
Yuba
NEVADA
COLUSA
Colusa
North Fork
LAKE
Yuba City
Grass Valley
Bear
Clear Lake
Indian Valley Res.
SUTTER
YUBA
Mid. Fork
Cache Cr.
Russian
PLACER
American
South Fork
YOLO
Folsom Lake
SONOMA
Lake Berryessa
Putah Cr.
Davis
Sacramento
EL DORADO
ALPINE
Santa Rosa
SACRA-MENTO
AMADOR
Mokelumne
NAPA
Napa
Pacific Ocean
SAN JOAQUIN
CALAVERAS
Stockton
Tuolumne
Oakland
San Francisco

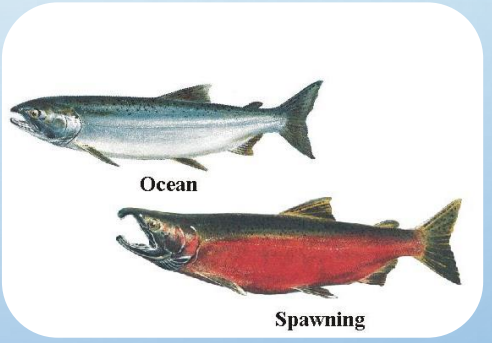
Salmonid Life Cycle



CHINOOK SALMON

Oncorhyncus tshawytscha

- One of seven Pacific Salmon species
- Known as “King” Salmon
- On Average grow to be 3 feet long and 30 lbs.
- In ocean they are silver .
- In river they develop olive/red coloration on backs and sides.
- Males and females have a difference in appearance.
- Anadromous, Single Spawners
- Young feed on insects and small crustaceans.



STEELHEAD TROUT(*Oncorhynchus mykiss)*

- Steelhead genetically are the same species as Rainbow Trout, but there are some major difference between the two.
- Anadromous form of *Oncorhynchus mykiss*
- Can reach up to 45 inches long and weigh up to 55 lbs
- Steelhead can spawn multiple time
- Can spawn multiple times.
- They can be found in most coastal streams throughout the state.
- Most sub-species throughout the state are on the threatened or endangered list.
- Spawning season for our region ranges from December to mid-March

RAINBOW TROUT(*Oncorhynchus mykiss)*

-Same species as Steelhead, but don't migrate.

- Coastal Rainbow Trout are one of California's 11 heritage species.

- Most common trout raised in hatcheries. With widest stocking distribution
- Spawn from February to June, depending on region
- Rainbow trout have been seen to hybridize with other trout subspecies.

What Stream Conditions Matter Most For Survival?

A) **What is the River Bottom gravel size?-** Ideal gravel size is 1 to 3 inches

B) **How much sedimentation is in the system?**- Too much can reduce the rate of egg survival.

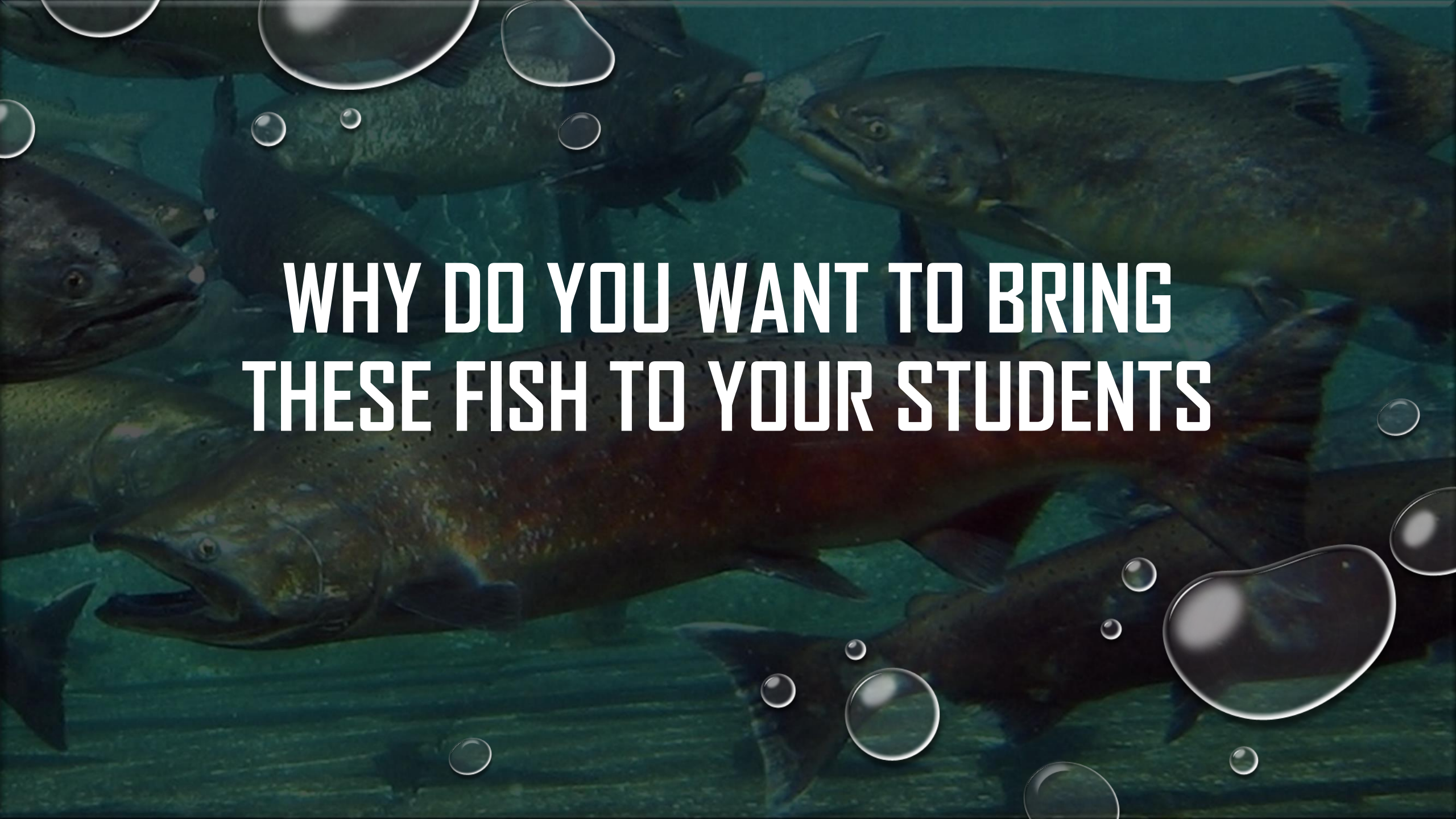
C) **Is there Large Woody Debris(LWD) present?-** LWD is Necessary to provide shelter from predators and fast currents, reduce water temperature, and provides food.

D) **Is the water too hot or cold?-** Too cold or too warm water can result in eggs and fry not surviving. Ideal water

E) **How much Dissolved Oxygen (D.O.) is in the system?-** Salmon require well oxygenated water to develop properly.

F) Is there a consistent food supply for young salmon?- Young salmon feed off aquatic insects, a healthy river system is often indicated by how many salmonids are present.

TRY TO REPLICATE THESE CONDITIONS IN YOUR CLASSROOM AQUARIUM!


WHY DO YOU WANT TO BRING
THESE FISH TO YOUR STUDENTS

Invasive Species: an organism that causes ecological or economic harm in a new environment where it is not native.

Alter Habitats

Extinction of native plants and animals.

Spread Disease

Prevent/interrupt native species reproduction

Predation

Hybridization

Competition.

Reduce Biodiversity

SO….WHAT IS MY ROLE?

Don't be Johnny Appleseed!

Never release fish anywhere but approved locations.

work with local conservation organizations that have agency review.

Remind kids of responsible pet ownership! They cannot release fish back into the wild or flush dead fish down the toilet.

Salmon and Hatchery Review

Get ready to compete!