



Watershed Guardians

Steelhead Curriculum for High School Students (50 min.)

- I. Introduction (5 min.)
- II. **Video:** Southern California Steelhead: Against All Odds (20 min.)
 - a. Link: <http://vimeo.com/79393289>
- III. Discussion of Steelhead and SoCal Steelhead Recovery Plan (20 min.)
 - a. Life Cycle
 1. Like Rainbow Trout, Steelhead are born in freshwater.
 2. Steelhead need water flow to travel to and from the ocean.
 3. Steelhead can spend several seasons growing out at sea before returning to their natal streams to spawn. Steelhead grow much larger than resident trout when feeding in the ocean.
 4. Steelhead travel can be blocked by passage barriers (dams, road crossings, etc.)
 5. Steelhead can be harmed by invasive species.
 6. Other threats to steelhead include urban development, poor water quality and low water flow.
 7. Unlike Salmon, Steelhead are able to return to the ocean after spawning and complete the cycle all over again.
 - b. History
 1. The geographical range of the SoCal Steelhead is from the Santa Maria River in the north down to the Tijuana River in the south.
 2. Original annual run estimates in the region were from 32,000-46,000 returning fish; currently the run estimate is less than 500.
 3. The Southern California Steelhead *distinct population segment* was listed as endangered in 1997. A DPS is determined by discreteness, significance and status of the segment. The SoCal DPS is significant because these fish are used to semi-arid climates and long periods of drought. As climate change becomes a reality, these SoCal fish may be genetically superior to their northern cousins who are accustomed to abundant water and cooler climates.
 4. Once a species is listed as *endangered* under the Endangered Species Act, a federal agency (either Fish & Wildlife Service or National Marine Fisheries Service) must create a recovery plan for the species. In this case, because steelhead are *anadromous*, NMFS was in charge of creating the recovery plan.
 1. The Southern California Steelhead Recovery Plan is available at:
http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/south_central_southern_california_coast/south_central_southern_california_coast_recovery_publications.html

- c. Top 5 Threats to Southern California Steelhead in San Diego & Orange Counties
 - 1. Non-Native (Invasive) Species
 - 2. Fish Passage Barriers
 - 3. Urban Development
 - 4. Dams and Surface Water Diversions
 - 5. Groundwater Extraction
 - d. The **South Coast Steelhead Coalition** is a group of non-profits, government agencies and other stakeholders that have an interest in watershed health throughout the San Diego and Orange County region. The coalition is collaboratively working together, using NOAA/NMFS' SoCal Steelhead Recovery Plan as a guide, to implement recovery actions to address primary threats to endangered steelhead, as well as improve the health of watershed ecosystems in the region in four Priority Watersheds in the San Diego/Orange County Region:
 - 1. Santa Margarita River
 - 2. San Mateo Creek
 - 3. San Luis Rey River
 - 4. San Juan/Trabuco Creek
- IV. Examples of Environmental Stewardship through school, work or volunteering. (5 min.)
- a. California Conservation Corps is a great place to get started. You are not guaranteed job placement after completion of the program, but working closely with environmentally related agencies may lead to job opportunities. You could go on to work for CalTrans, the U.S. Forest Service, U.S. Border Patrol, or in landscaping. Examples of skills gained are in landscaping, fire reduction, building trails, etc. This program is for ages 18-25.
 - 1. San Diego (619) 409-0802
 - 2. North San Diego County/Vista (760) 599-9711
 - 3. Inland Empire/San Bernadino (909) 708-8470
 - b. Volunteer Opportunities
 - 1. Water Quality Testing: Orange County or San Diego Coastkeepers.
 - 2. Fishing Related Volunteer Opportunities: Golden State Flycasters; San Diego Fly Fishers; South Coast Chapter of Trout Unlimited.
 - c. Careers Requiring 2-year Degrees
 - 1. Environmental Technician
 - 2. Solar Panel Installation
 - d. Careers Requiring 4-year Degrees
 - 1. Environmental Engineer
 - 2. Environmental Scientist
 - 3. Environmental Protection Specialist
 - 4. Conservation Scientist
 - e. Things you can do at home:
 - 1. Conserve water.
 - 2. Be aware of spreading non-natives at your home or during recreation.
 - 3. Spread the word!
 - 4. Follow us on Facebook: www.facebook.com/southcoaststeelhead

Post-presentation Exercise

Find the Southern California Steelhead Recovery Plan online and locate the "Recovery Tasks" Table for the Santa Margarita Watershed (located in Chapter 13). Pick three recovery tasks, and write a brief paragraph on how you would implement each of those tasks within your community.