Activity 24: Salmon Rescue Activity Book

Audience:

K-8 for coloring and activities, Grades 9-adult for salmon identification

Time:

Flexible

State Essential Learning Requirements

Science: 1.1

Social Studies Geography 3.1

Arts: 4.1

Materials:

Master to make copies of Salmon Rescue Activity Coloring Pages provided in appendix

Overview:

Salmon Rescue contains activity pages with identification tips for salmonids and coloring pages of actions people can take to restore salmon depicted in the WDFW "Watershed Restoration Partnership" poster. These coloring pages may be used to create dioramas of salmon recovery.

Objectives:

- To identify and describe salmon species.
- To review what individual and community actions help restore salmon to streams.

Critical Questions Addressed:

1. Value
3. Recovery

Directions:

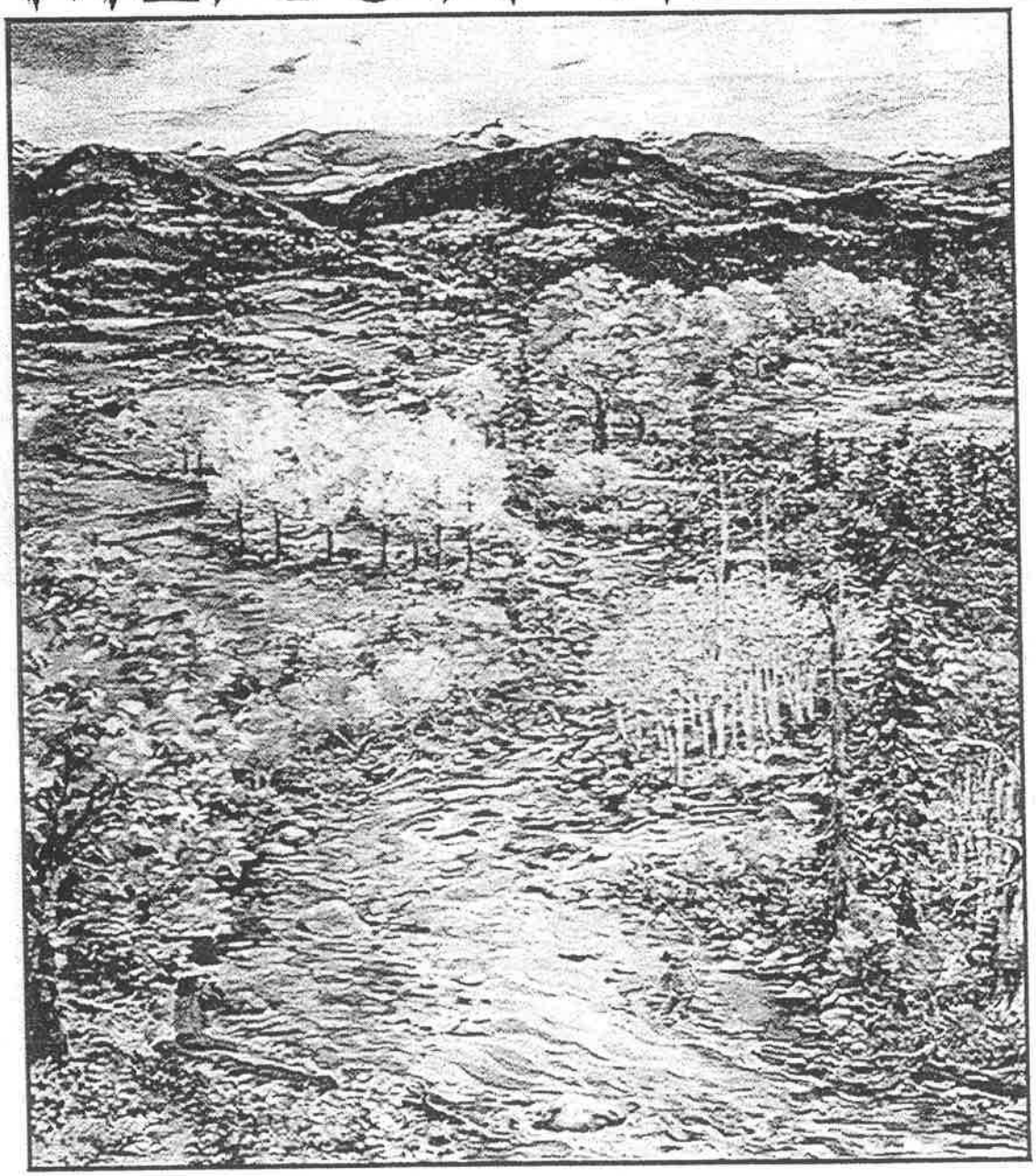
Use the Salmon Rescue Activity Coloring Book for the following purposes:

- to identify salmon species
- to review actions to help restore salmon to streams
- to create dioramas depicting what communities can do to help save salmon

Washington Department of FISH and WILDLIFE

Washington Department of Fish and Wildlife

SALMON RESCUE



SAVE OUR SALMON ACTIVITY BOOK

Washington ProjectWILD

WDFW Extension and Outreach

Helping People Help Fish and Wildlife

How can you help Save Our Salmon?

This book has coloring pages and activities that teach you about how people can save salmon with the help of the Washington Department of Fish and Wildlife. Salmon need healthy watersheds to survive. You can make a difference by keeping your watershed healthy for people and salmon.

Get ideas from this activity book and list what you can do to keep your watershed healthy for salmon (page 26).

The front cover of this activity guide pictures a healthy rural watershed good for salmon and people. Find and circle the places on the front cover where you can see the results of the actions suggested on pages 15 through 24 of this coloring book. The front cover is part of the WDFW "Watershed Restoration Partnership" poster available from distributors on page 27. Join the Washington Department of Fish and Wildlife in restoring our watersheds for salmon.

WDFW Extension and Outreach

Helping People Help Fish and Wildlife

Produced by: Margaret Tudor, ProjectWILD coordinator
Original Art by: Amy Fisher
Illustrations by: Peggy Ushakoff, WDFW Graphic Designer

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Helping people help fish and wildlife.
Color this picture using the example on the front of this book
or go to our website at: **www.dfw.wa.gov**

Washington's Salmon

Welcome Home!

Did you know . . .

. . . salmon are born in Washington's freshwater rivers, (where some stay for up to two years);

. . . then move to the salty ocean, feeding and growing rapidly as they mature into teenagers and adults (two to six-year-olds in salmon years), traveling as far away as Alaska and Japan;

. . . then come back to their Washington home river in the fall, to spawn then die;

. . . and if you live in Western Washington, there is a stream near you where you can go see salmon returning home?

Did you also know . . .

. . . salmon need cold, clear and clean water for the eggs and young salmon to live?

. . . that to save wild salmon, we must all help - by using less water and electricity (to keep the water in the streams for the fish), and recycling used antifreeze, oil and paints (dumping chemicals into the ground or drains pollutes the streams where salmon live.)*

Places to See Salmon Return Home

Bellingham Area - Maritime Heritage Center, Arroyo Park, Oyster Creek.

Seattle Area - Seattle Aquarium, Ballard Locks, Issaquah Hatchery, Cedar River (Renton Library - Maple Valley).

Olympic Peninsula Area - Olympia Fifth Ave. Bridge, Kennedy Creek, Hoodsport Hatchery.

SW Washington - Kalama Fallert Creek Hatchery, Naselle River, Willapa River, Washougal Hatchery.

Eastern Washington - Upper Yakima River (Lake Easton State Park, Cle Elum), Wenatchee River (Tumwater Canyon), Naches River... Most WDFW hatcheries*

Other Ways to Help Salmon*

- Plant trees and shrubs near creeks (with adult supervision and the land-owner's permission).
- Turn off lights.
- Take shorter showers. Hey kids, next time you don't want to take a bath, say "I'm trying to save salmon!"

*Teachers and parents: For a thorough understanding of the importance of individual actions on salmon, see **"Your Impact on Salmon - a Self Assessment"** on the Internet at **www.wa.gov/wdfw**. Also on this site are many additional materials on salmon, and a complete listing of WDFW Hatchery locations to visit.

If you don't have internet access, you can write to the Washington Department of Fish and Wildlife, Attention: Education Program at 600 Capitol Way North, Olympia WA 98501-10091 and request a copy.

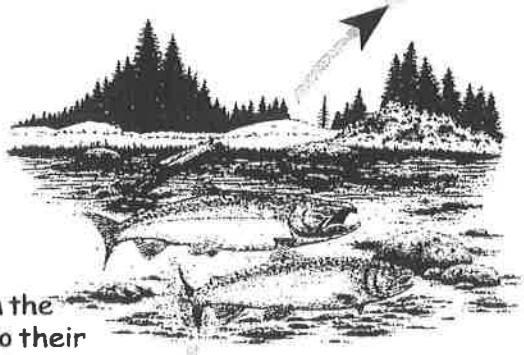
Salmon Life Cycle

Pacific salmon lay their eggs in the fall in a gravel nest called a "redd." If they have plenty of cool clean water with enough oxygen, the eggs hatch after a few months. After hatching, the young salmon have a large yoke sac protruding from their belly. They are now called sac fry, or "alevins."

eggs

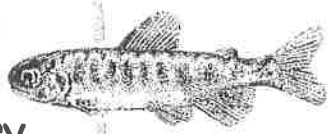
Alevins hide in the gravel and live off their yoke sac for one to three months. A good flow of cool, well-oxygenated water through the gravel is critical to survival. When the nutrients in the yoke sac have been absorbed, the young fish emerge from the gravel as inch-long fry, or "parr."

alevin



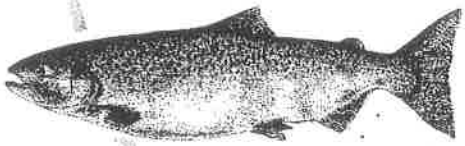
When salmon mature, they begin an incredible journey from the ocean back to their place of birth, where they spawn just as their parents did. After spawning, all andromous Pacific salmon (except steelhead and cutthroat trout) die, and their bodies provide food for stream life.

spawner



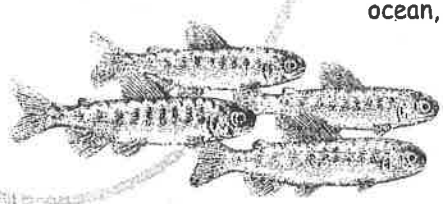
fry or parr

The fry also known as parr, are easy prey for predators such as birds and other fish. Only about 15 out of 100 eggs survive through the fry stage. When young salmon are ready to leave freshwater and go to the ocean, they are called "smolts."



adult

Some salmon spend only one or two years in the ocean before they return as adults to spawn. Others, such as the chinook, may spend up to six or seven years growing in the ocean.

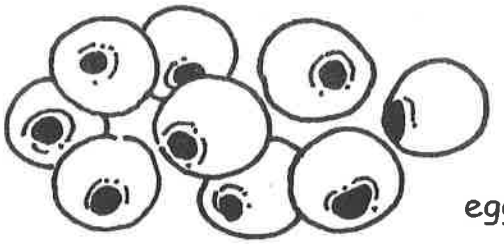


smolt

Some salmon fry, such as pink and chum salmon, leave for estuaries (places where fresh and salt water mix) soon after they leave the gravel. Others, such as coho, sockeye, and steelhead and cutthroat trout, spend one or more years in fresh water before they become smolts.

Young Salmon Stages

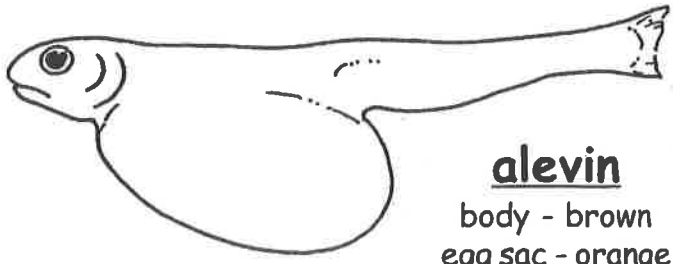
"Hi! We are eyed-eggs.
We live in a gravel nest."



eggs

eggs - pink with black dot

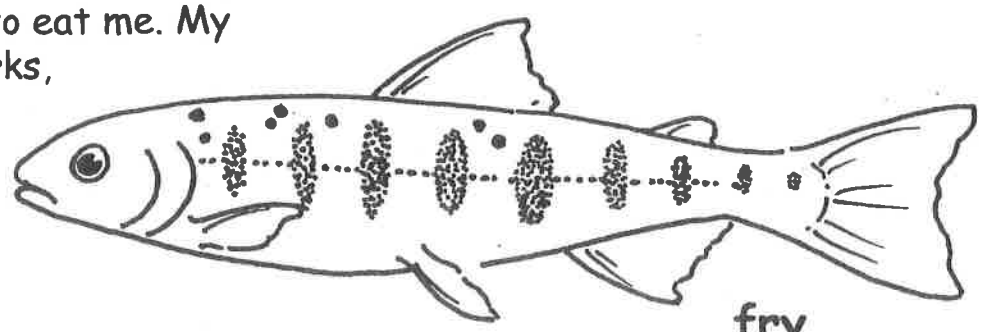
"Hi! I'm Al Alevin.
I hide in the gravel. I get food from my yolk sac."



alevin

body - brown
egg sac - orange

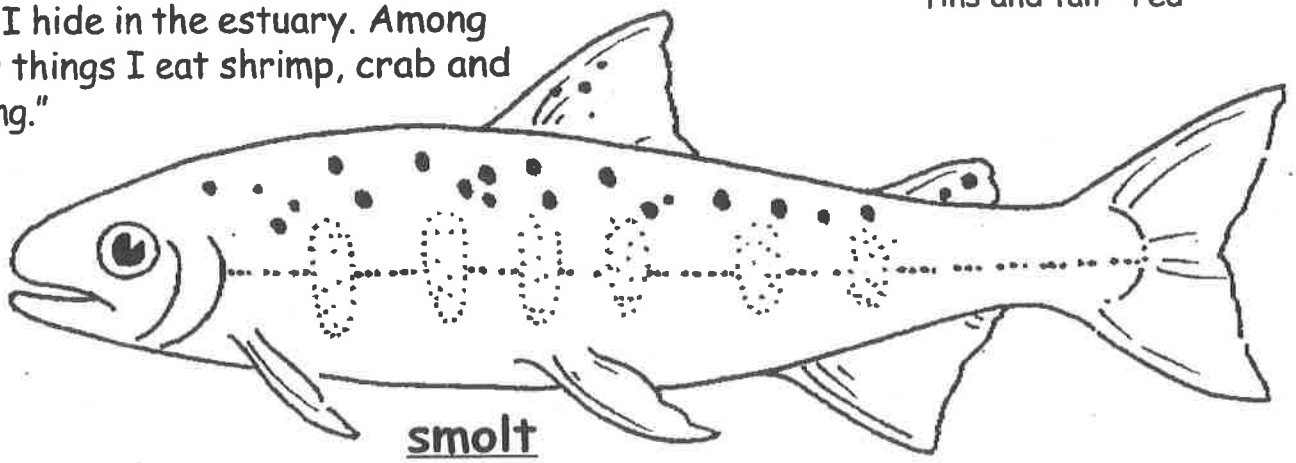
"Hi! I'm Frenchy Fry.
I leave the nest and go downstream to deeper water. I eat insects and tiny plants. Predators like to eat me. My marks, called parr marks, help me hide."



fry

eye - yellow
above line - red
below line - grey
fins and tail - red

"Hi! I'm John Smolt
I am getting used to salt water while I hide in the estuary. Among other things I eat shrimp, crab and herring."



smolt

eye - yellow
above line - green
below line - grey
fins and tail - green

Salmon Chart

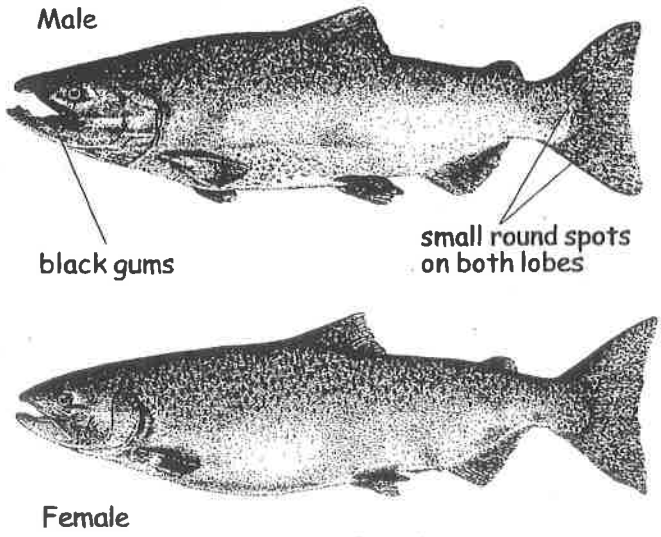
Washington has five species of salmon which live in its streams. They are the Chinook, Sockeye, Chum, Pink and Coho Salmon.

Salmon in Danger:

Wild salmon that hatch as eggs in one stream return to the stream of their birth. These salmon are called a salmon "stock" or salmon "run." Certain runs of salmon are in danger of never returning. Find out what salmon are in danger where you live on page 26: Salmon Endangered Map.

Salmon Not in Danger:

There are wild and hatchery salmon populations or runs which are healthy. Fishers and tribes fish for these healthy runs of salmon.



Name: King (chinook)

When does it spawn: Fall

What does it look like:

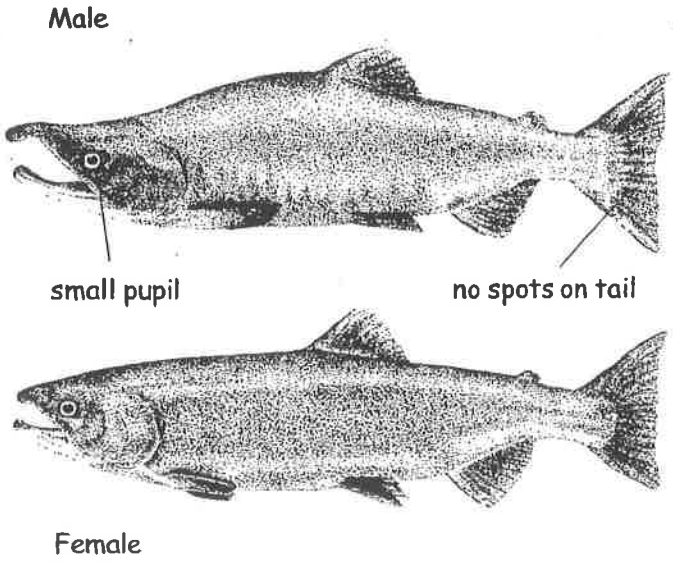
- blue-green back
- spots on both sides of tail and back

How much does it weigh:

10 to 50 pounds

Color of flesh: orangish-pink

How long it lives: 5 to 7 years



Name: Sockeye (red)

When does it spawn: Early Fall

What does it look like:

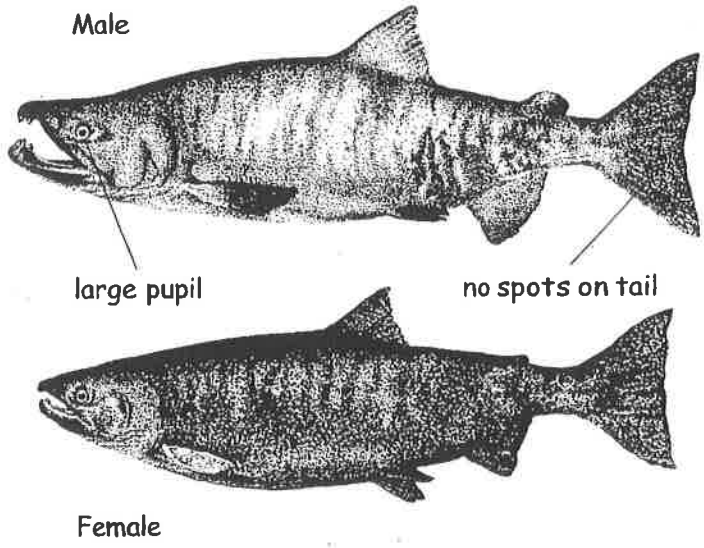
- blue tinged silver color
- speckles on sides
- turns bright red when spawning

How much does it weigh:

5 to 7 pounds

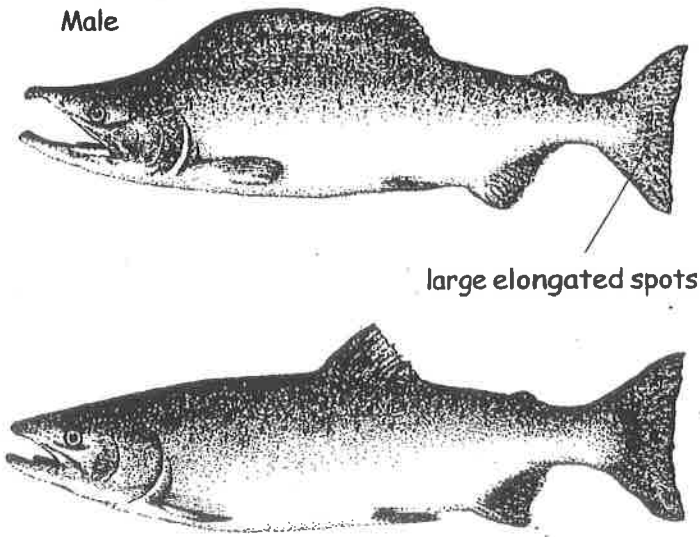
Color of flesh: dark red

How long it lives: 3 to 7 years



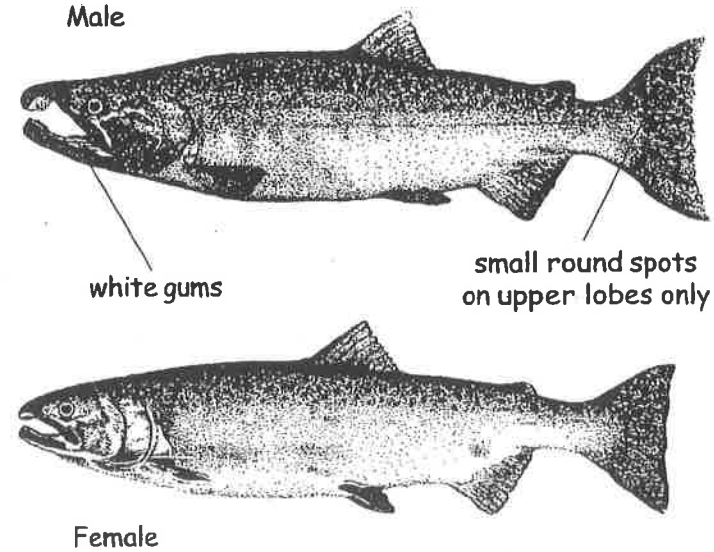
Name: Chum (dog)
When does it spawn: Fall
What does it look like:
- fine dark speckles on back
- no spots
- dark side markings
- large teeth at spawning

How much does it weigh:
8 to 18 pounds
Color of flesh: pink
How long it lives: 3 to 5 years



Name: Pink (humpback)
When does it spawn: Early Fall
What does it look like:
- heavily spotted back
- hump behind the head

How much does it weigh:
3 to 5 pounds
Color of flesh: light pink to white
How long it lives: 2 years

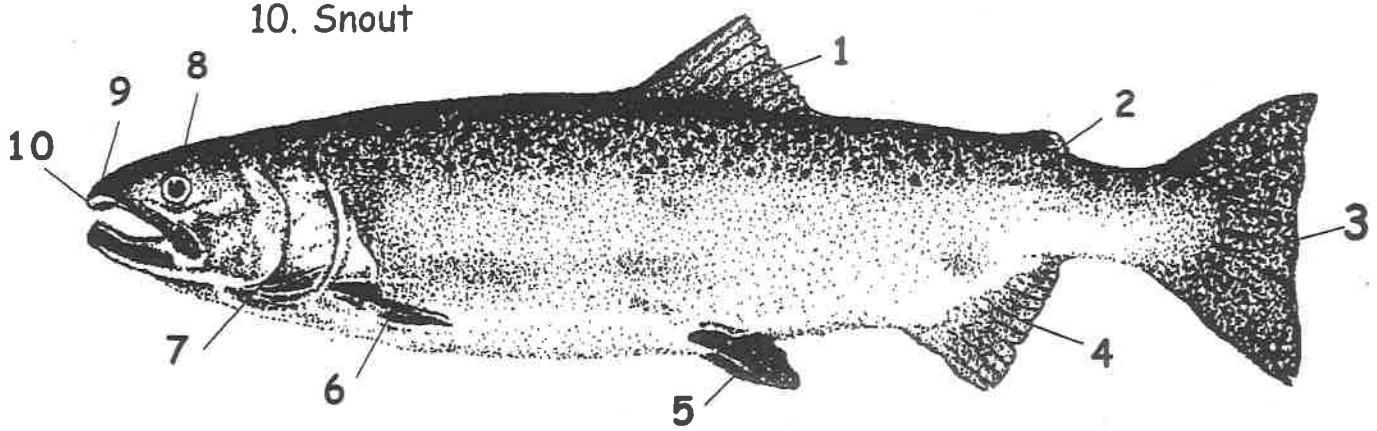


Name: Coho (silver)
When does it spawn: Fall
What does it look like:
- bright silver
- spots on top of body and top of tail fin
- teeth are needle sharp

How much does it weigh:
6 to 16 pounds
Color of flesh: dark pink
How long it lives: 2 to 4 years

Anatomy of a Salmon

1. Dorsal fin
2. Adipose fin
3. Caudal fin
4. Anal fin
5. Pelvic fin
6. Pectoral fins
7. Gill cover
8. Eyes
9. Nares
10. Snout



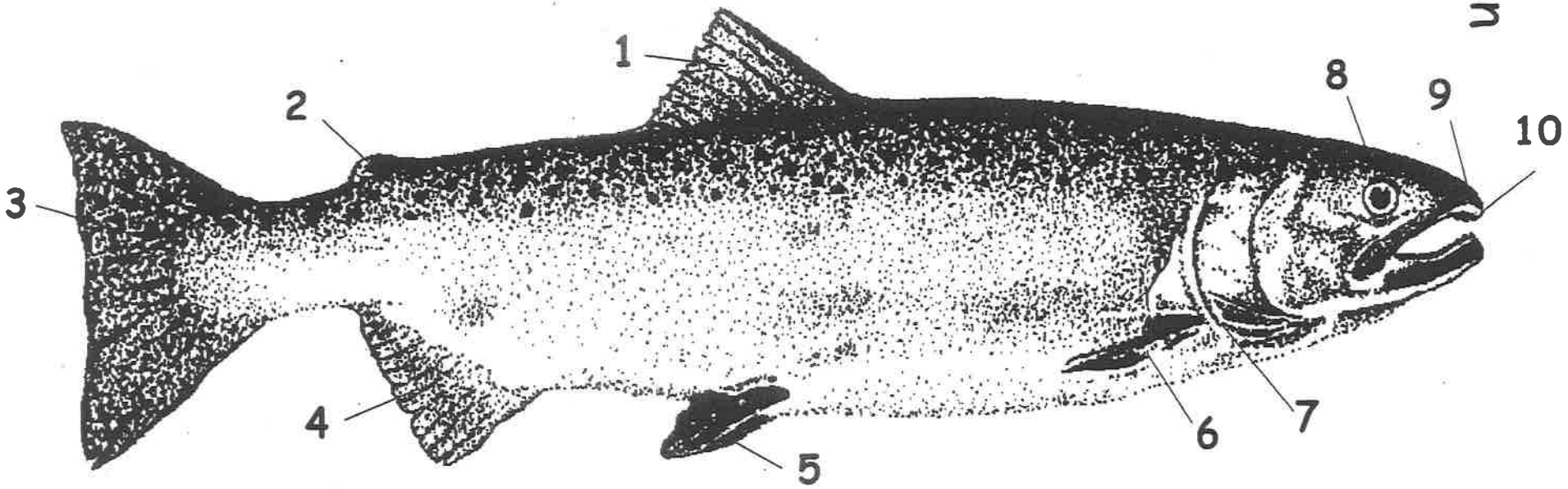
1. Dorsal fin: This large fin on the fish's back provides stability (helps the fish stay upright.
2. Adipose fin: This small fatty fin between the dorsal fin and tail is found only in a few fish families. It performs no known function, and is removed in trout and salmon to identify fish as coming from a hatchery.
3. Caudal fin: Also called the tail fin, this is used to move the fish through the water.
4. Anal fin: Like the dorsal fin, this fin helps provide lateral stability.
5. Pelvic fins (also called "ventral" fins in some fish): There are two of these fins, placed symmetrically on both sides of the fish. They assist the dorsal and anal fins in keeping the fish balanced.
6. Pectoral fins: Like the pelvic fins, the pectorals come in pairs, symmetrically placed on both sides of the fish. They help the fish position or aim itself in the water. Some fish can also use the pectoral as brake
7. Gill covers: These hard plates on both sides of the fish's head protect the fragile gills, through which water passes to provide oxygen to the fish.
8. Eyes: Many fish, including salmon, have well-developed sight provided by their two eyes. They can see above, below, ahead, and to the side at any time. The only area they cannot see is in an arc of about 60 degrees directly behind them.
9. Nares: A fish's nostrils are called nares. Water passes through the nares to the olfactory organs, which provide salmon with their incredibly keen sense of smell.
10. Snout: The forward-most part of the fish's head is called the snout.

Anatomy of a Salmon

Dorsal fin
Anal fin
Gill cover
Snout

Adipose fin
Pelvic fin
Eyes

Caudal fin
Pectoral fins
Nares



Label the following:

1. _____ 2. _____ 3. _____

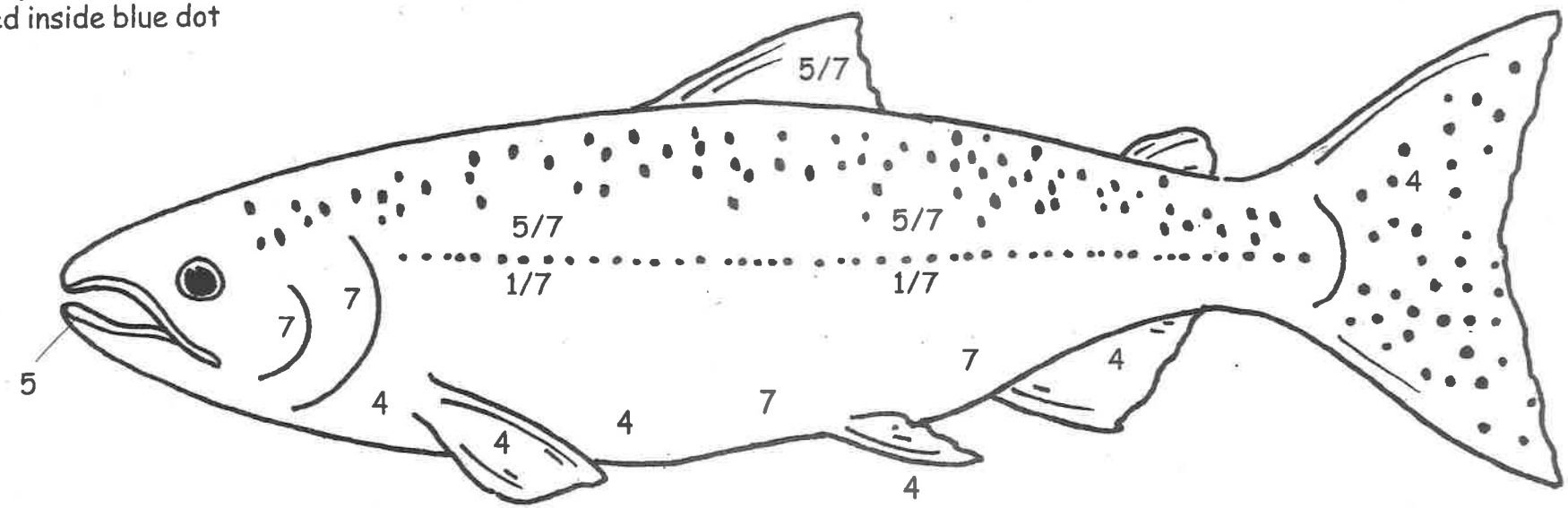
4. _____ 5. _____ 6. _____

7. _____ 8. _____ 9. _____

Directions: Using the color key provided, color this chinook salmon. You will see the chinook's bright spawning colors.

1 salmon pink
2 olive green
3 turquoise blue
4 silver/gray
5 black
6 white
7 brown
8 yellow
9 red
10 purple
11 red inside blue dot

Chinook



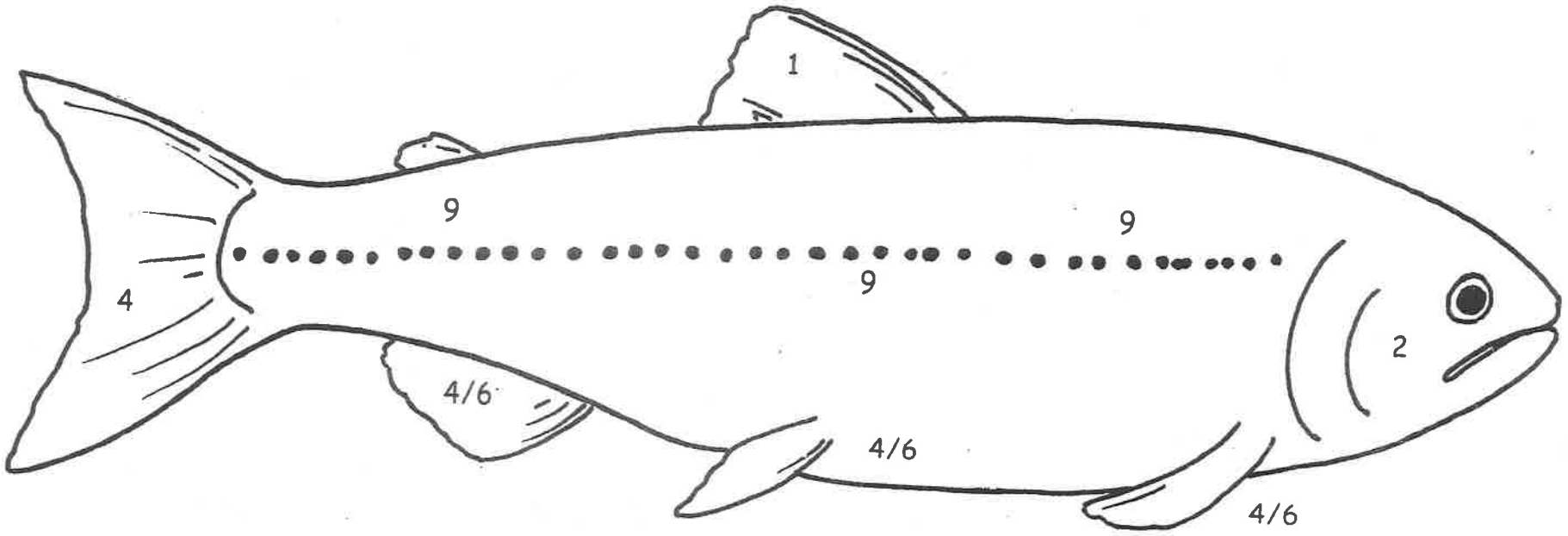
"Hi! I am the 'King' Chinook because I am the biggest salmon. I have lots of spots all over my back. I am sometimes called a blackmouth because my teeth grow from black gums.
When I come home to my stream this is what I look like."

The Colors of Salmon

Directions: Using the color key provided, color this sockeye salmon.
You will see the sockeye's bright spawning colors.

1 salmon pink
2 olive green
3 turquoise blue
4 silver/gray
5 black
6 white
7 brown
8 yellow
9 red
10 purple
11 red inside blue dot

Sockeye

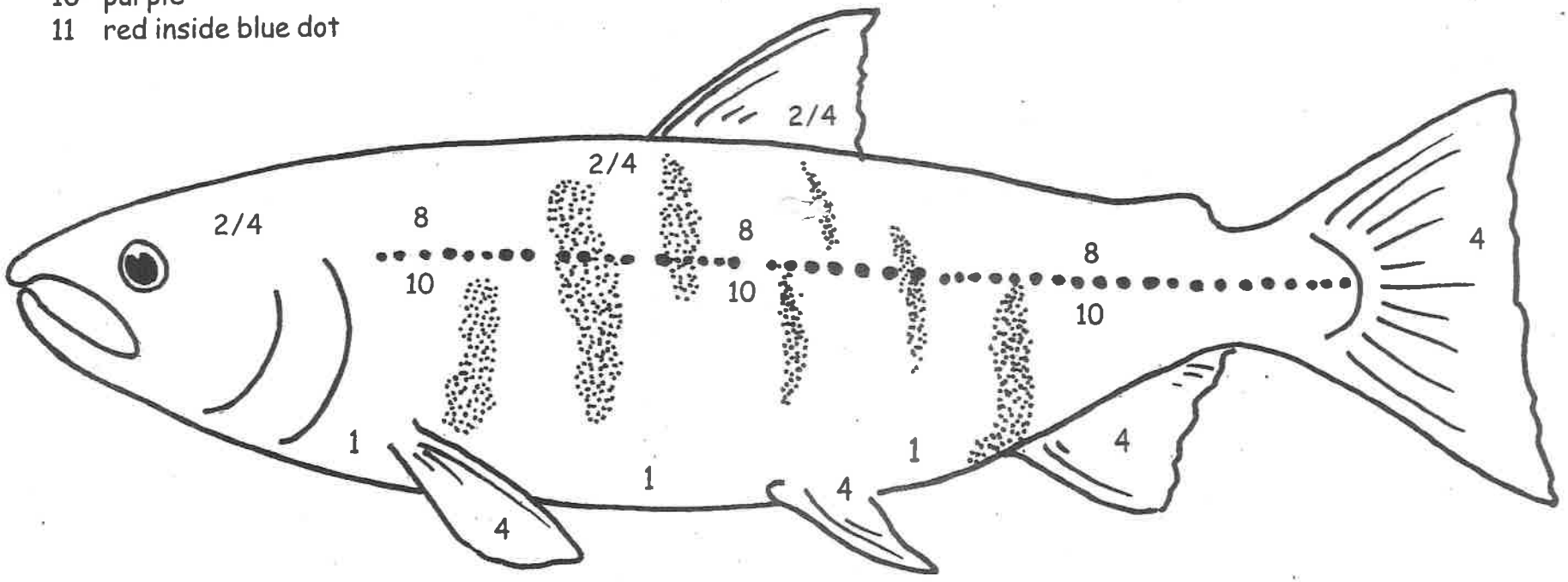


"Hi! I am Susan Sockeye Salmon. My back is a shiny dark blue. I have very few spots like other salmon.
When I come home to my stream this is what I look like."

Directions: Using the color key provided, color this chum salmon. You will see the chum's bright spawning colors.

1 salmon pink
2 olive green
3 turquoise blue
4 silver/gray
5 black
6 white
7 brown
8 yellow
9 red
10 purple
11 red inside blue dot

Chum

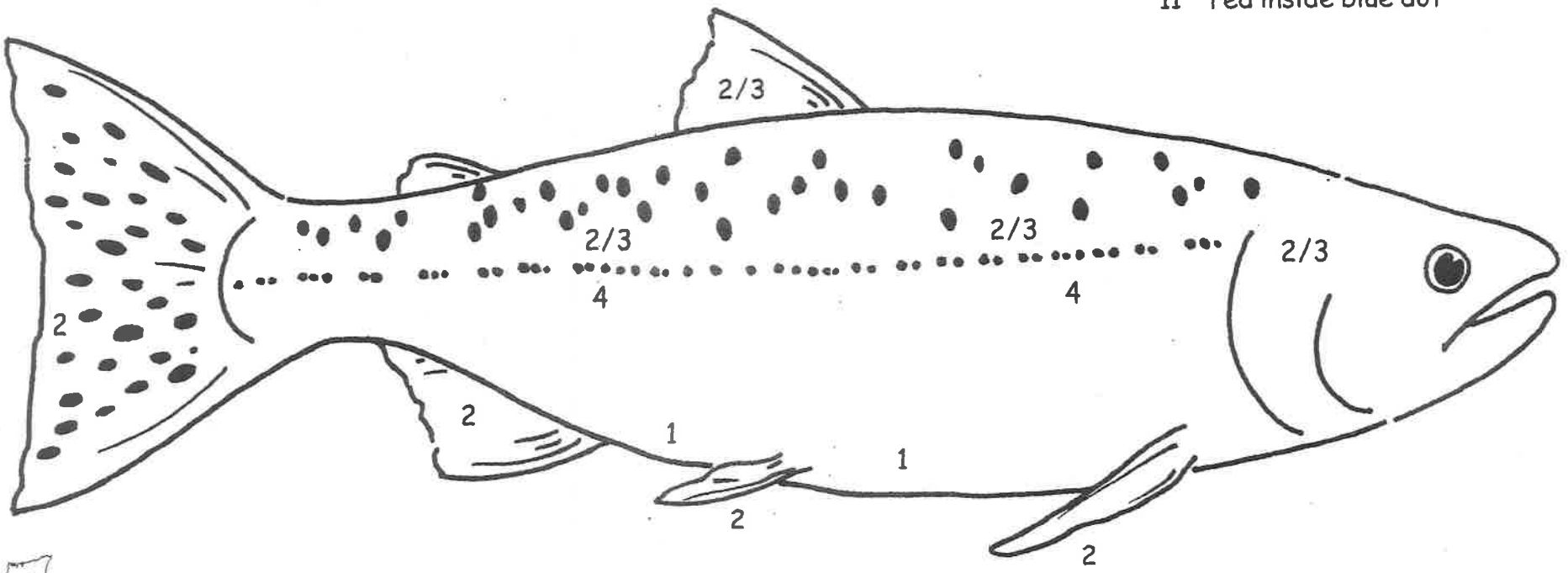


"Hi! I am Charles Chum Salmon. Did you know I have no spots on my tail and back. I have a pattern of bands on my side.
When I come home to my stream this is what I look like."

Directions: Using the color key provided, color this pink salmon. You will see the chinookpink's bright spawning colors.

1	salmon pink
2	olive green
3	turquoise blue
4	silver/gray
5	black
6	white
7	brown
8	yellow
9	red
10	purple
11	red inside blue dot

Pink

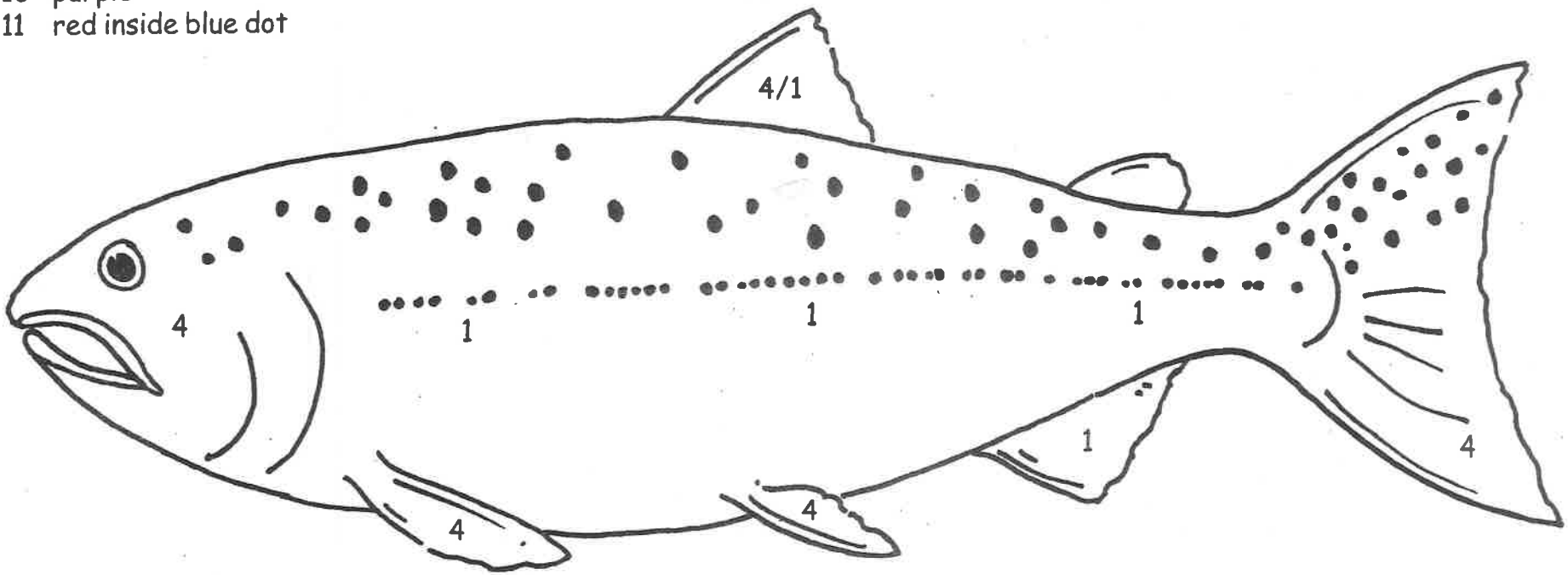


"Hi! I am Penny Pink Salmon. I have large oval spots all over my tail and part of my back. My fish scales are very small.
When I come home to my stream this is what I look like."

Directions: Using the color key provided, color this coho salmon. You will see the coho's bright spawning colors.

1 salmon pink
2 olive green
3 turquoise blue
4 silver/gray
5 black
6 white
7 brown
8 yellow
9 red
10 purple
11 red inside blue dot

Coho



"Hi! I am Cody Coho Salmon. I have some spots on my back and only the top of my tail. My teeth grow from a white gum line.
When I come home to my stream this is what I look like."

What Salmon Need: The Four "C's"

The following pages show how important habitat is to salmon. Remember that salmon need the Four 'C's'.

Salmon Need the Four "C's"

CLEAR water
CLEAN water
COOL water
CONSISTENT water

What Harms Salmon	Effect on Salmon
Scouring wintering floods	Kills eggs and destroys rearing habitat
Summer low stream flows	Inhibits migration, raises water temperature
Sedimentation from land	Silt smothers eggs, covers spawning habitat
Poor water quality	Kills fish: Sometimes because of the low oxygen content, raised water temperature, and pollution
Stream blockages	Close off spawning and rearing grounds, kill migrating fish

Salmon Rescue Coloring Pages

Our goal is to help people and communities:

- ❑ Maintain or restore the stream to a Natural Stream Environment ..... page 15
- ❑ Clean-up their local streams. ..... page 16

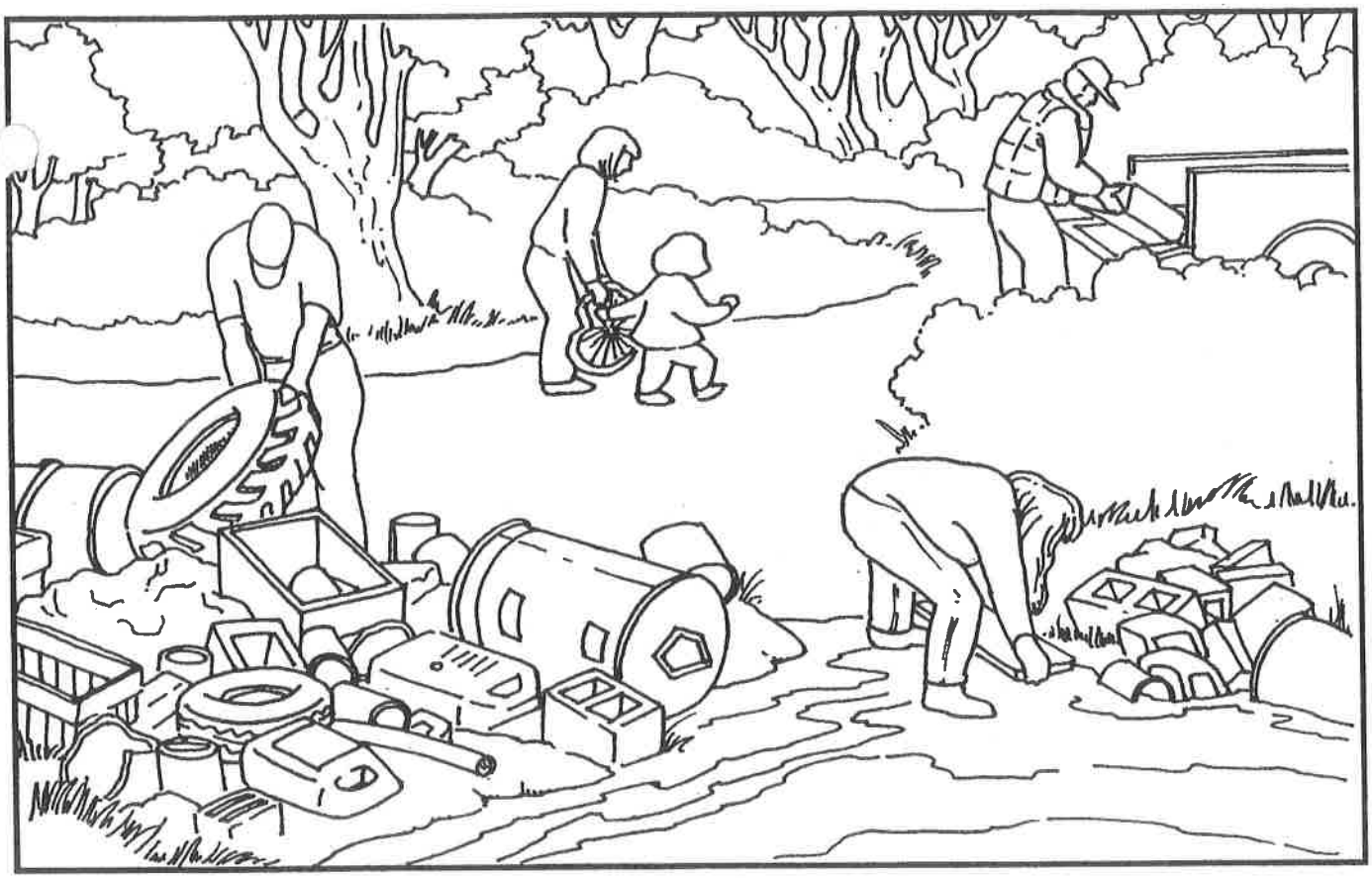
Our scientists can help communities and volunteers with:

- ❑ Streambank vegetation ..... page 17
- ❑ Fencing ..... page 18
- ❑ Bridge building ..... page 19
- ❑ Adding gravel to improve streams ..... page 20
- ❑ Brush bundles and large woody debris ..... page 21
- ❑ Improving fish passage at culverts ..... page 22
- ❑ Marking storm drains ..... page 23

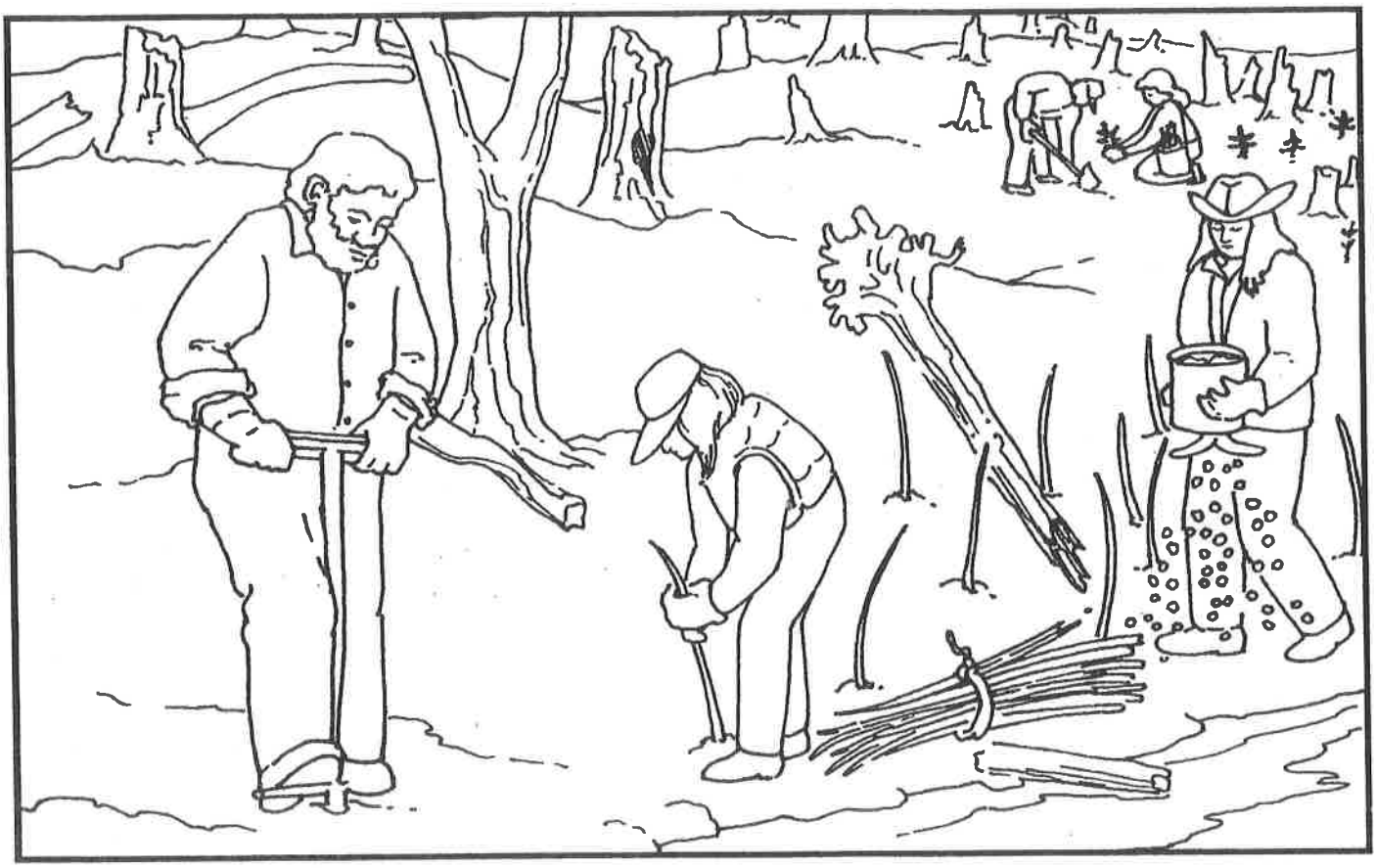
What's good for Salmon is also good for people and wildlife. Keep your whole watershed healthy by:

- ❑ Building bird boxes ..... page 24
- ❑ Leaving nurse logs page25

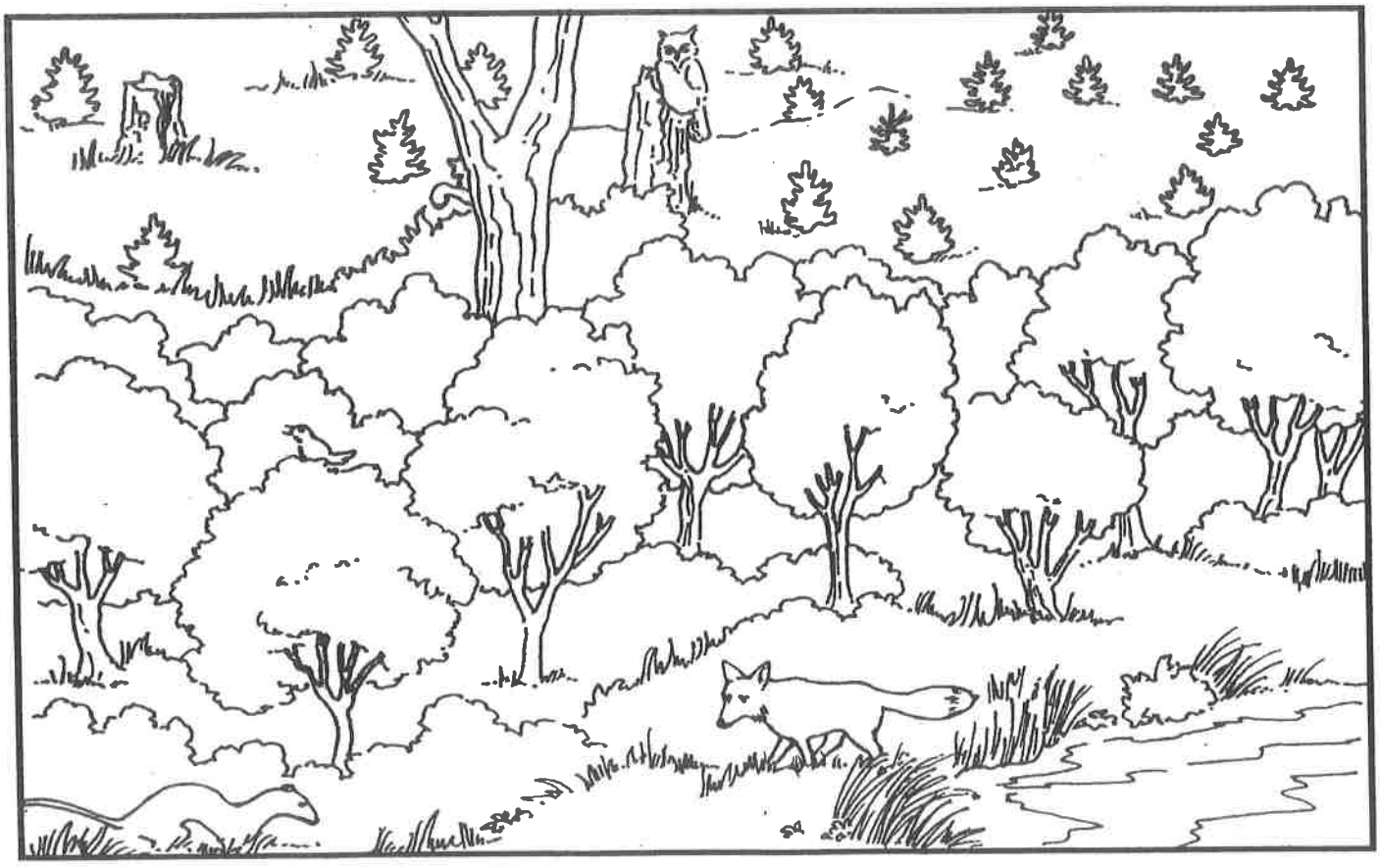
The Natural Stream Environment The thick band of trees and brush found along healthy streams helps keep the water cool and clean by providing shade and filtering out sediment and pollutants. When trees and large limbs fall into the stream they form pools, riffles and hiding cover for young salmon to rest. The leaves and twigs that fall in the water provide food for aquatic insects that are in turn eaten by fish.

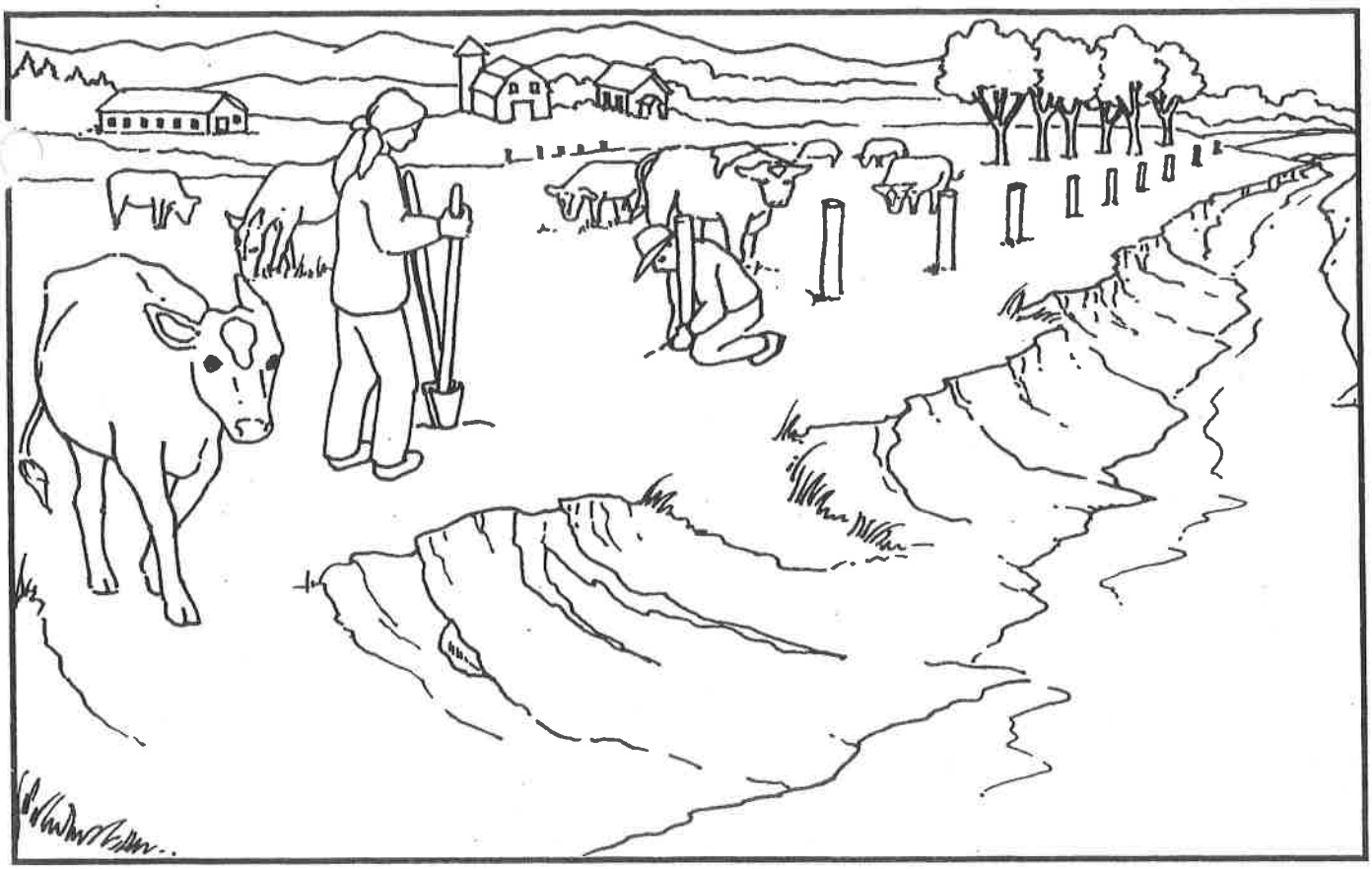


Stream Cleanup Picking up the garbage left in and near streams improves the view, cleans up the water, and creates a better habitat for fish and wildlife. You can get your family and neighbors involved to do a big cleanup.

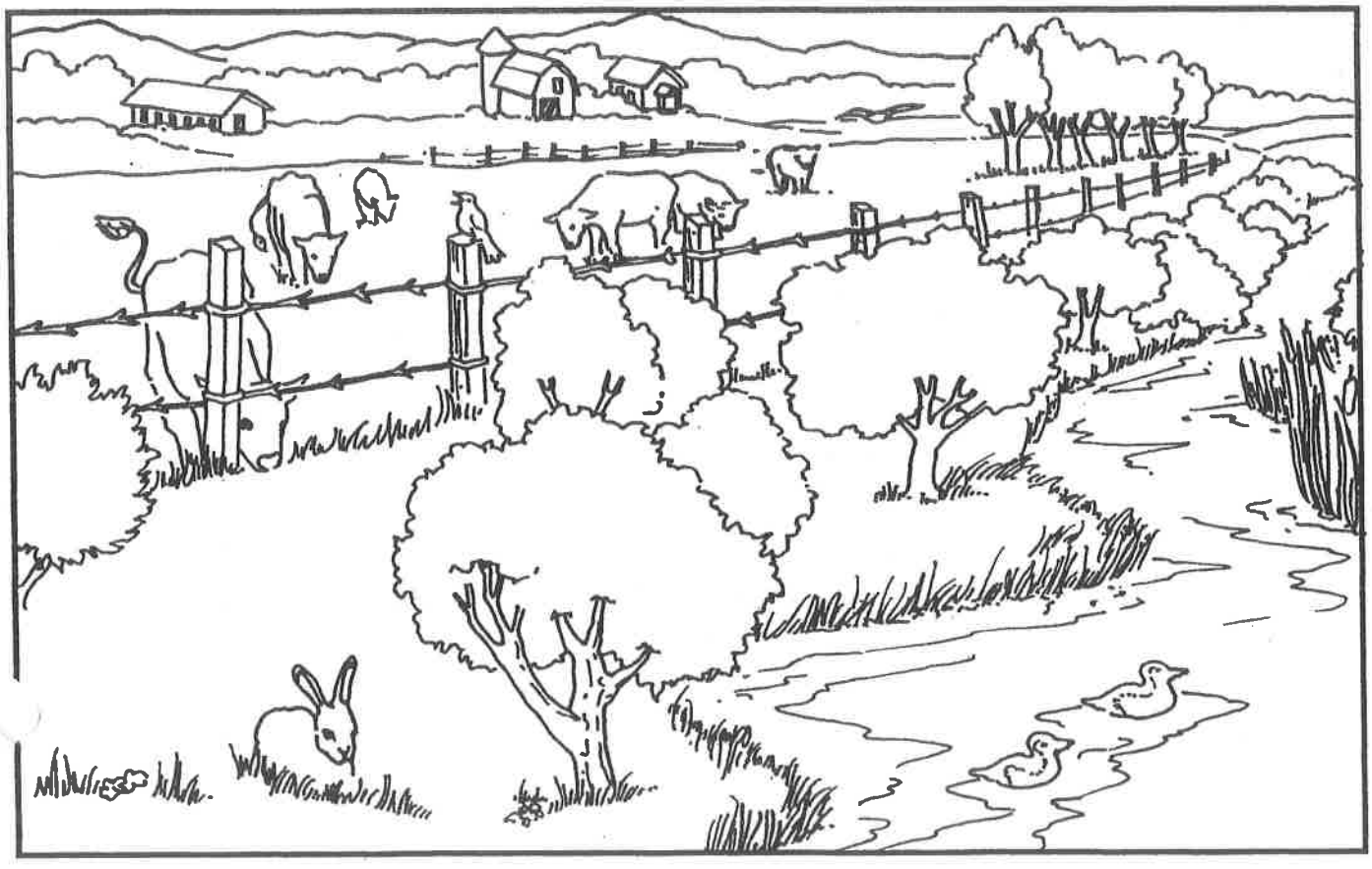


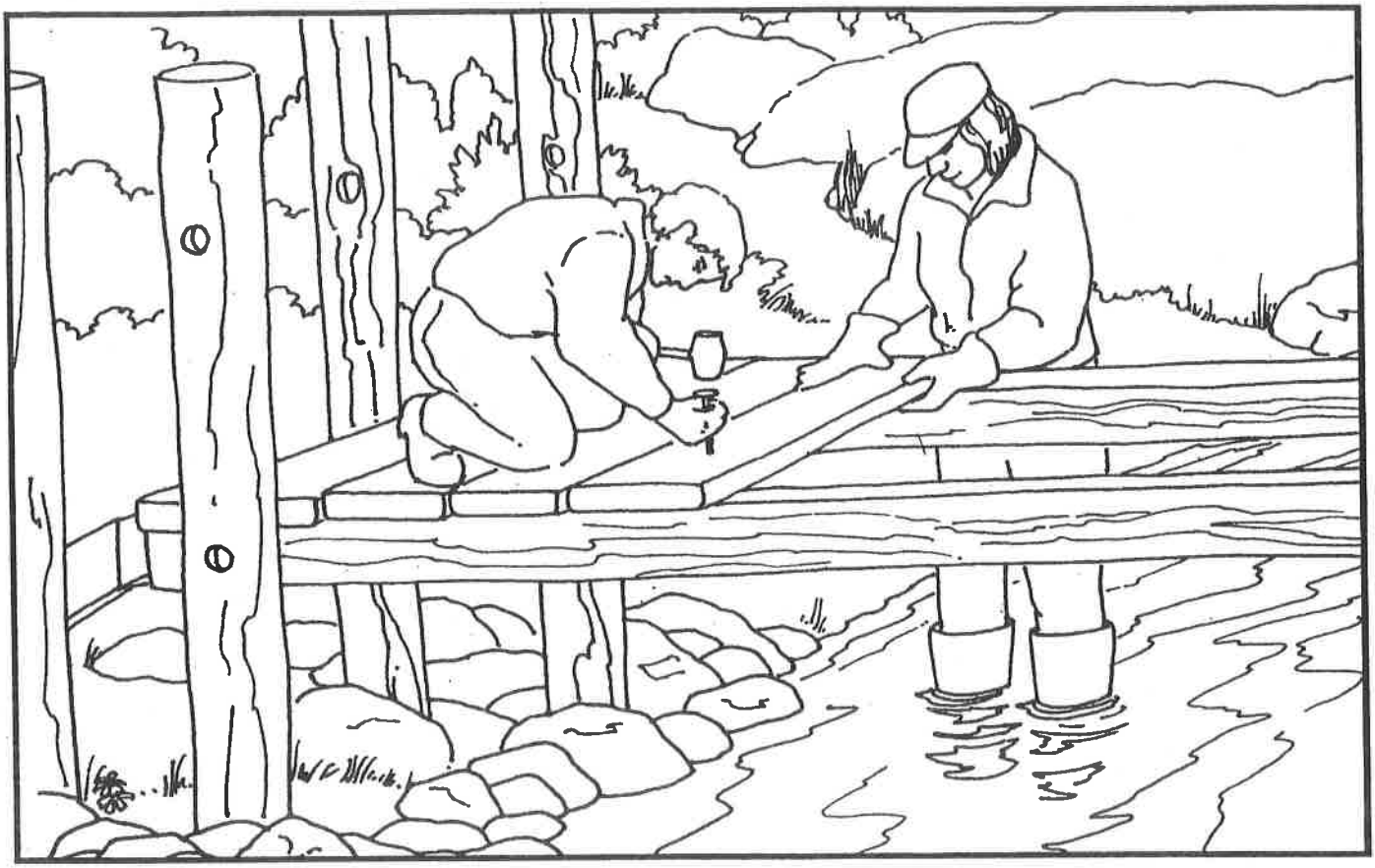
Stream Bank Revegetation We can help restore streambanks where the vegetation has been removed by replanting native trees and shrubs. Young plants grow rapidly in many parts of Washington and soon begin to provide shade, food and cover for fish and other forms of wildlife.



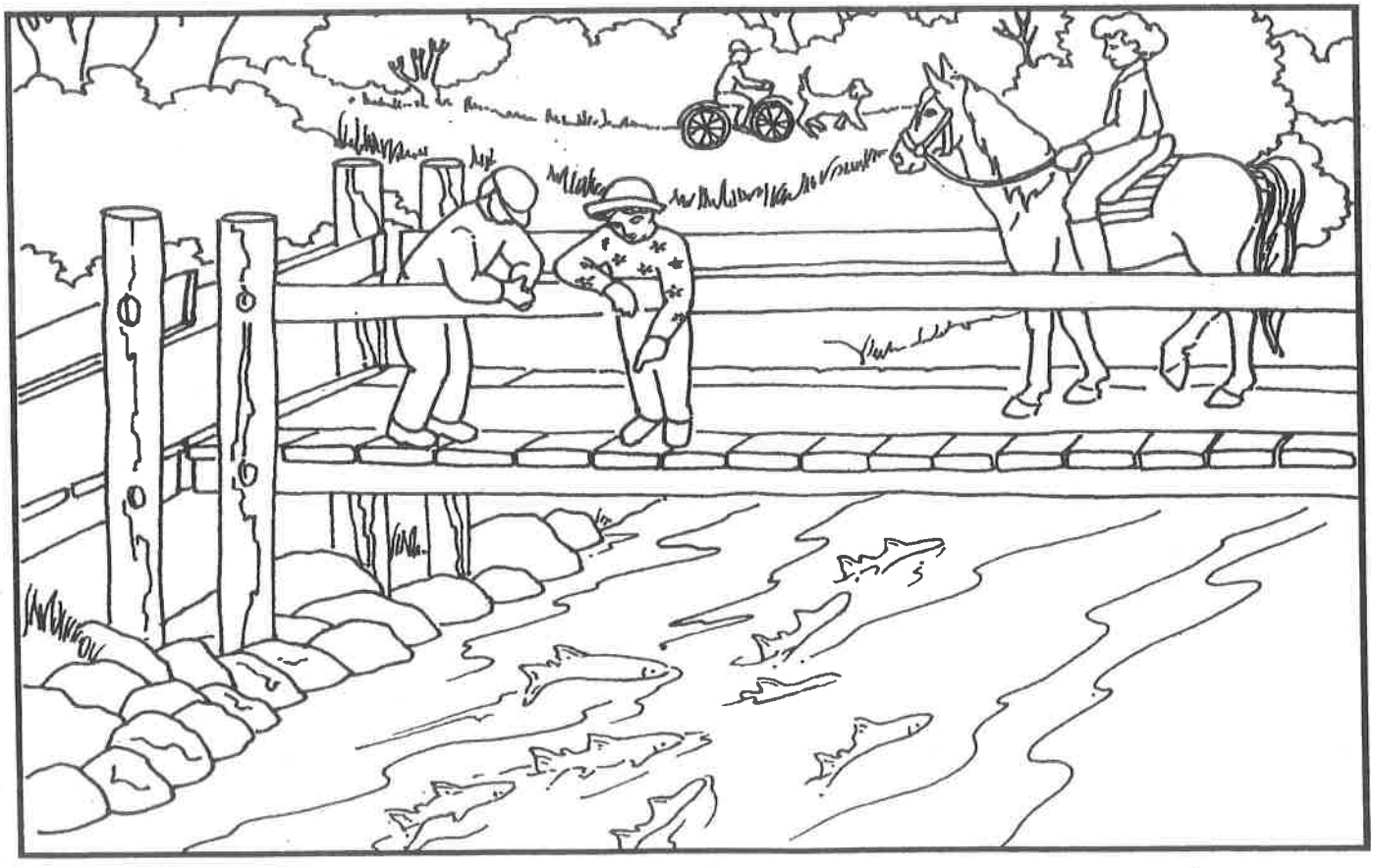


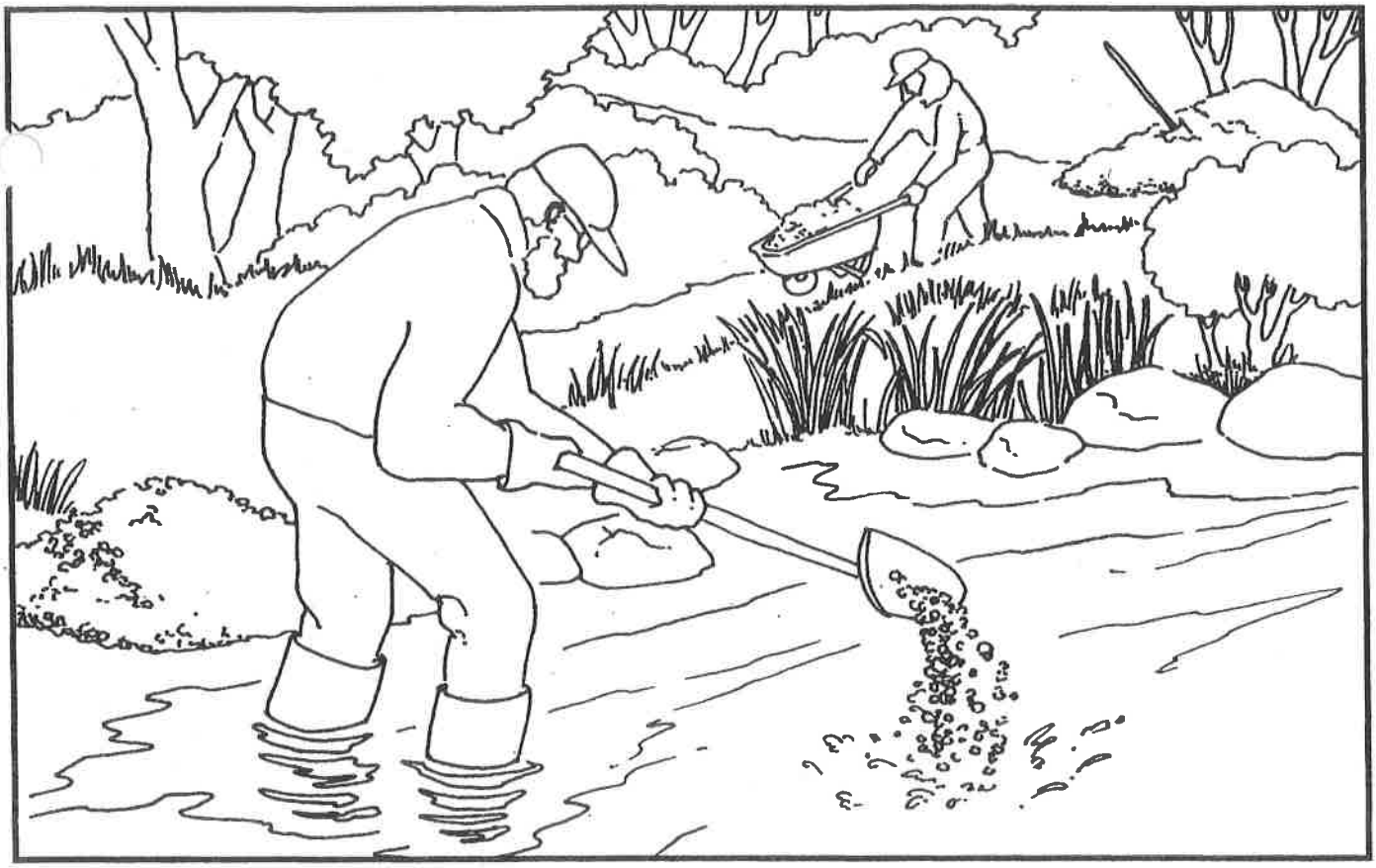
Fencing With the help of local landowners and groups like the Conservation District, we can build fences to keep farm animals (livestock) away from the sides of the streams. Fencing will give streambank trees and shrubs a chance to grow and help provide habitat for fish and wildlife.



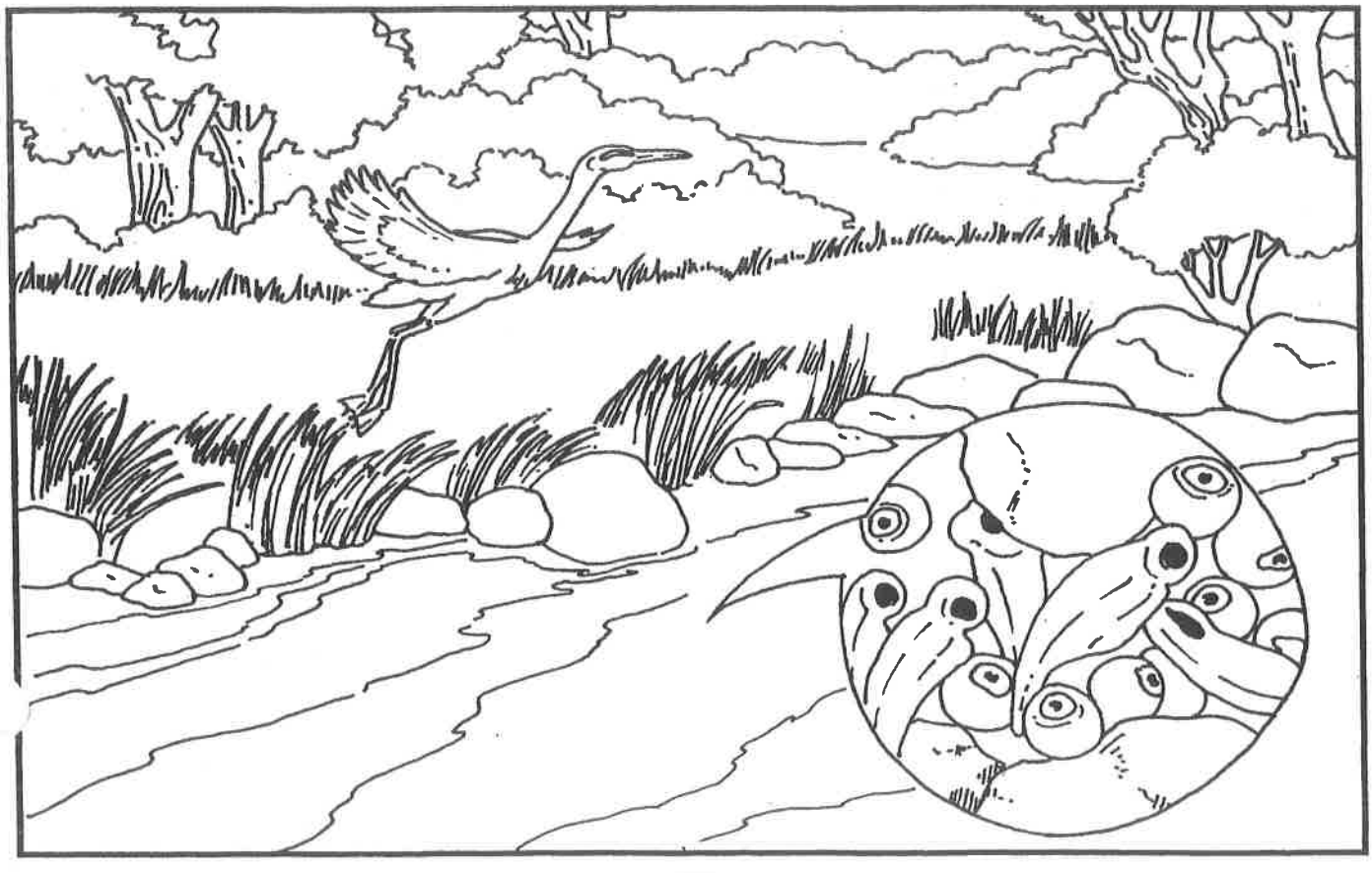


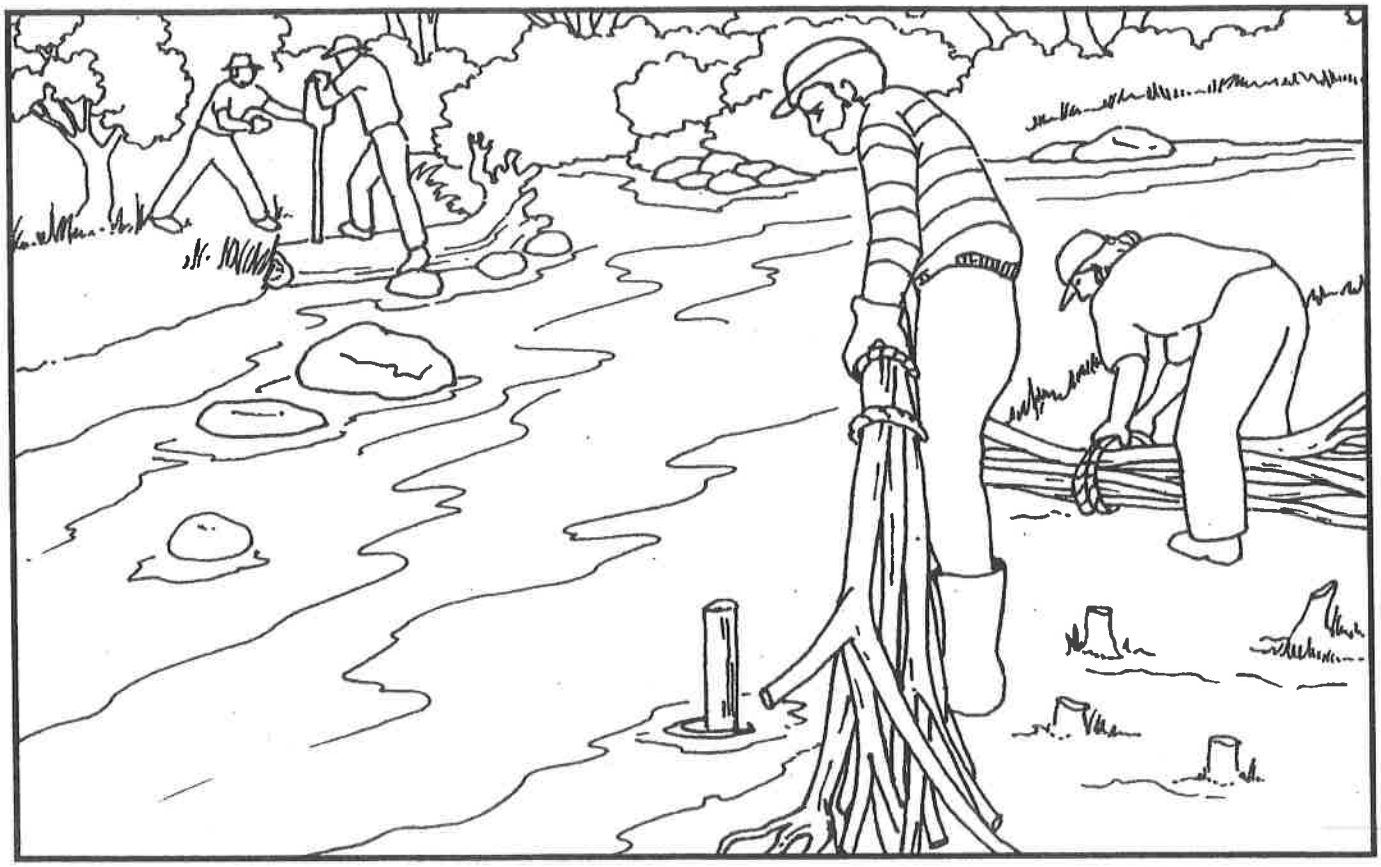
Bridge Building Bridges allow people and animals to cross streams without eroding stream banks. They also help protect important salmon and trout spawning beds and fish habitat.



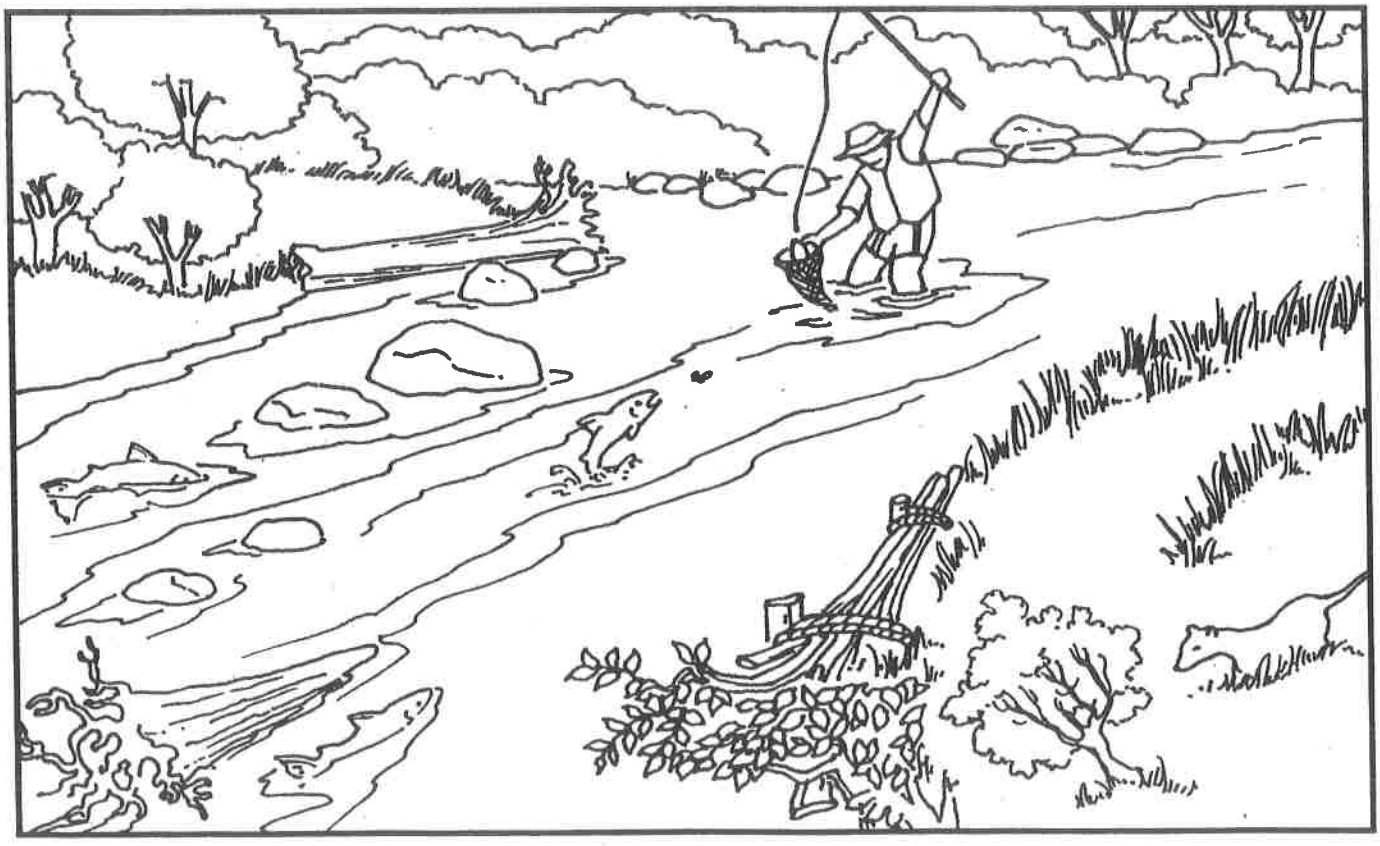


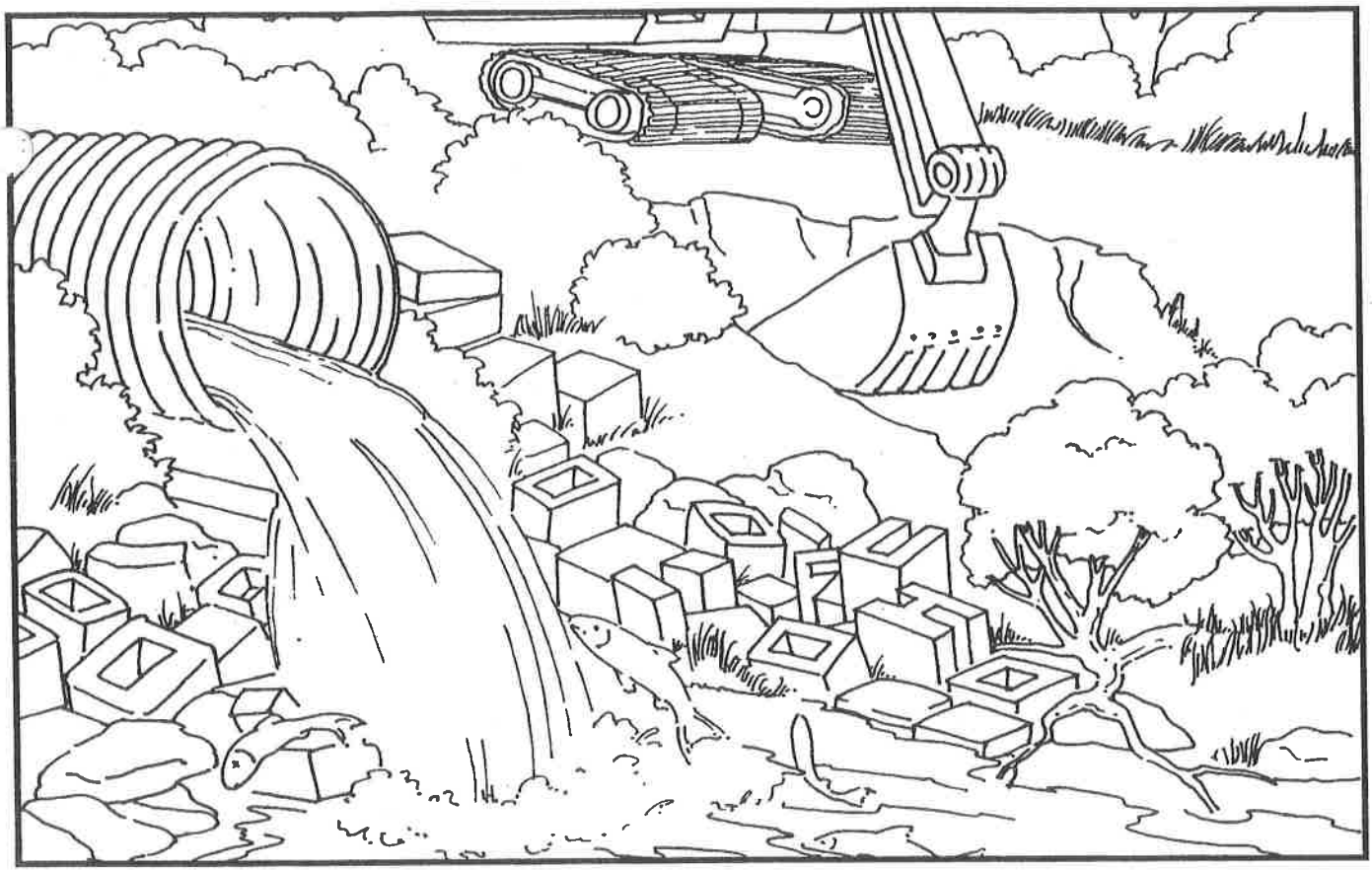
Adding Gravel to Improve Streams Spawning salmon and trout need clean gravel in which to lay their eggs. In some streams, adding clean round gravel can improve spawning abitat. To make sure you don't harm the river, work with a WDFW biologist or other local experts to find out if the river needs gravel. You will also need to learn about the best way to add gravel to the river.



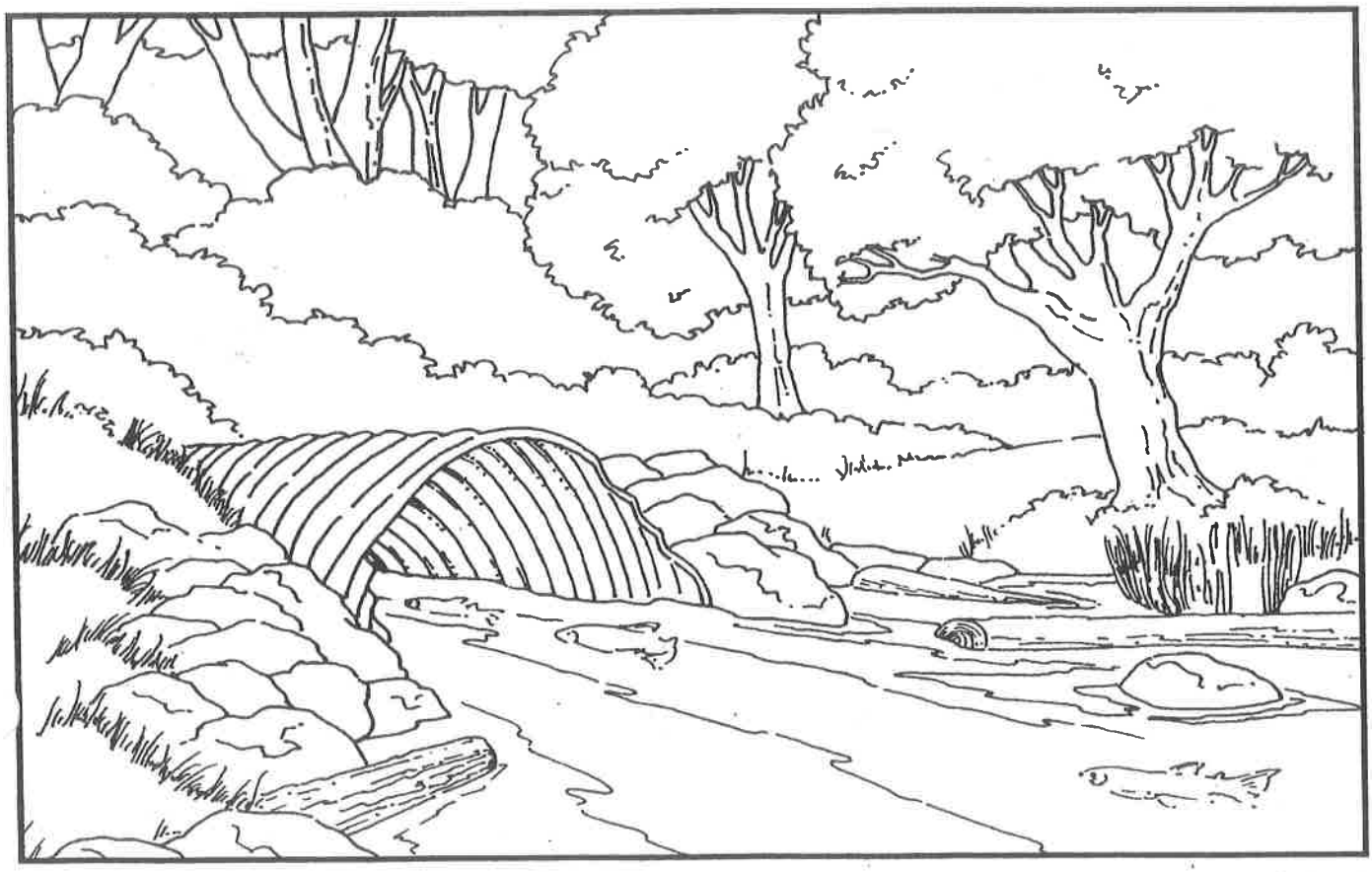


Brush Bundles and Large Woody Debris When the natural sources of wood have been removed, salmon and trout may benefit greatly from having large logs and other woody debris added to the stream. Logs limit erosion and so protect salmon eggs from being washed away or covered in silt. Logs also trap gravel for spawning beds, and create important resting areas and cover for young and adult salmon. WDFW can help with planning and providing legal permits for these projects.

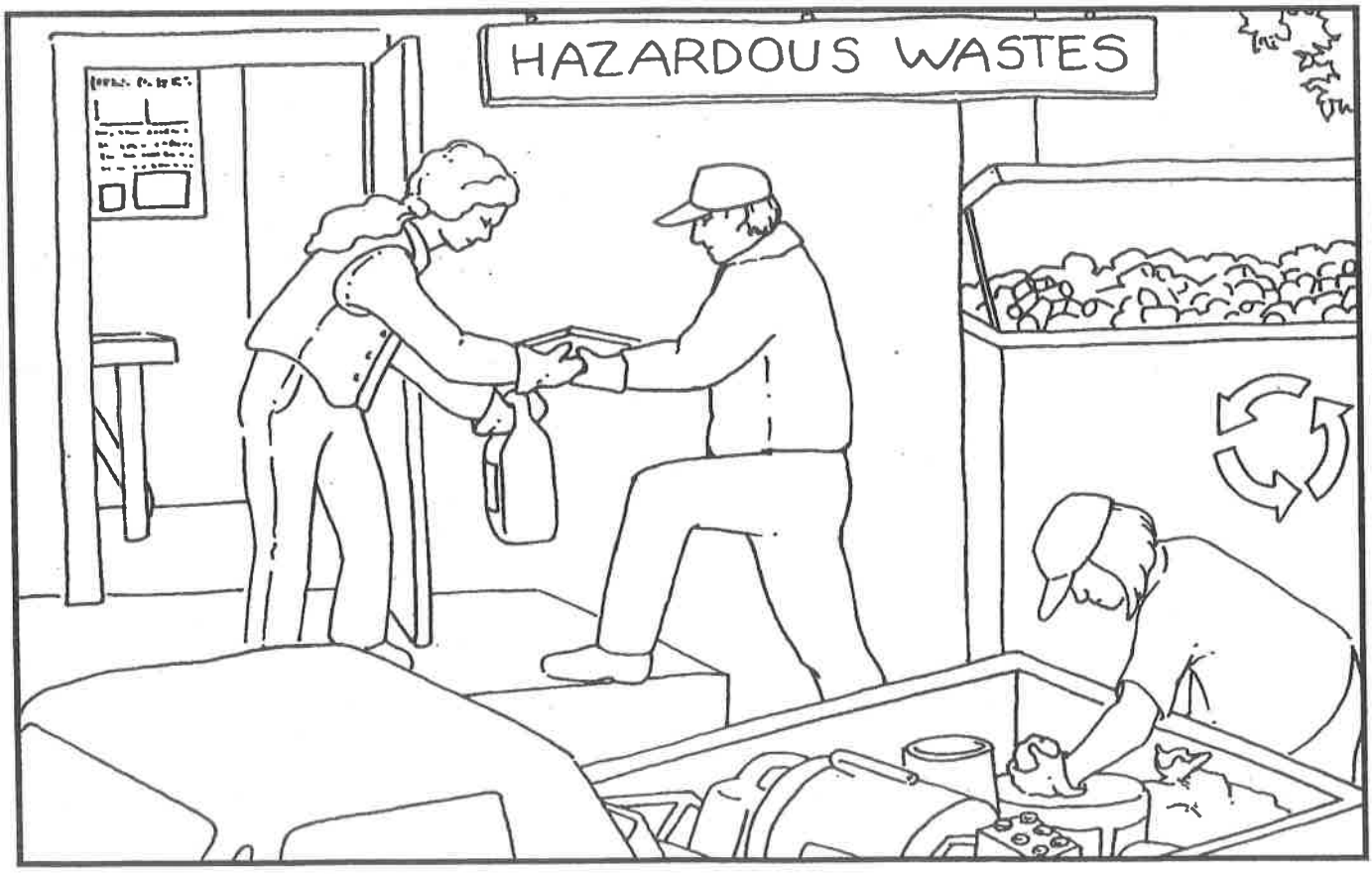


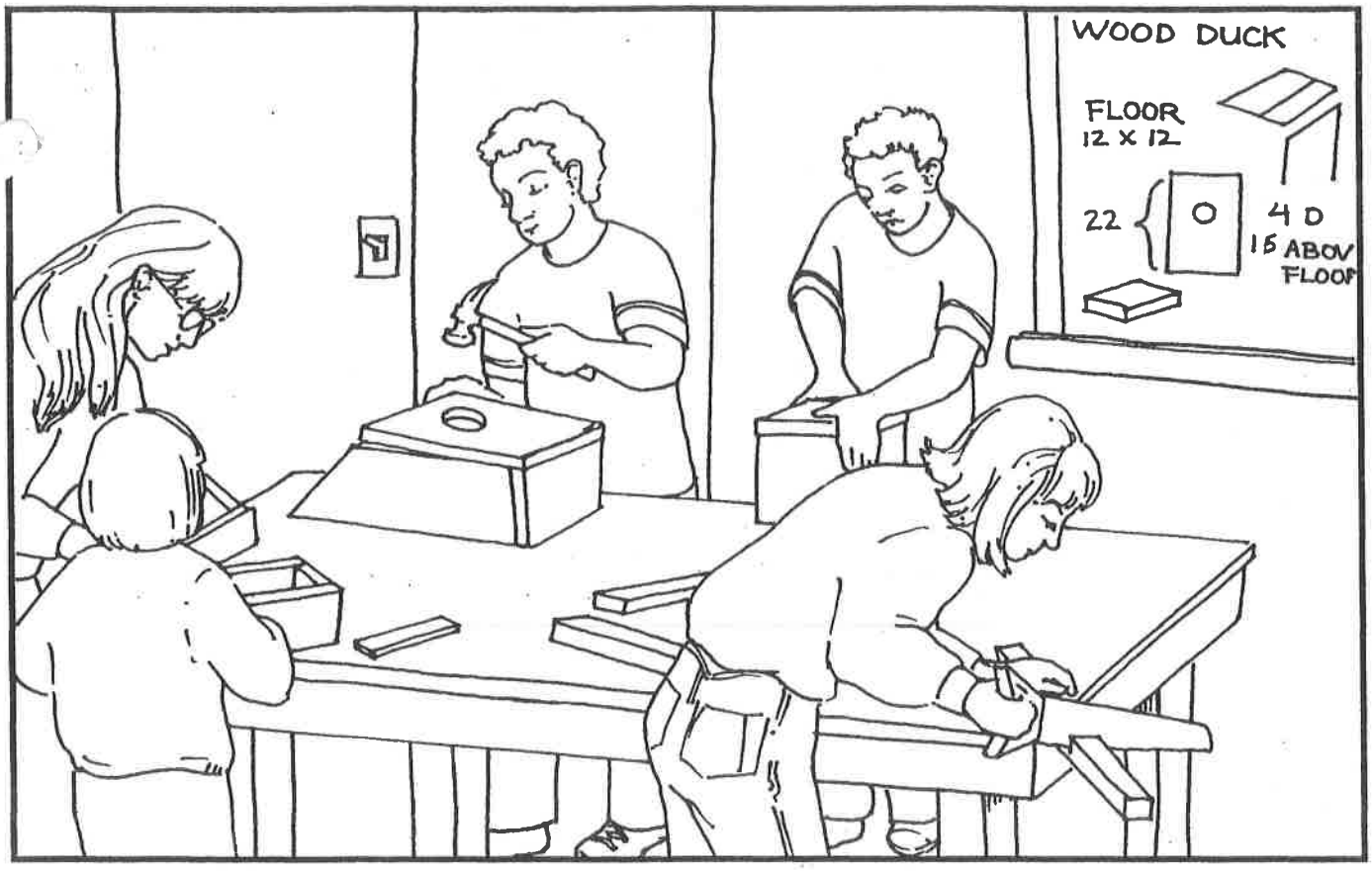


Improving Fish Passage at Culverts Improperly installed and failed culverts block returning fish from reaching miles of spawning grounds. These culverts prevent young fish from moving to new habitat and maturing. By replacing or clearing these blockages, we allow fish to use the entire stream system.

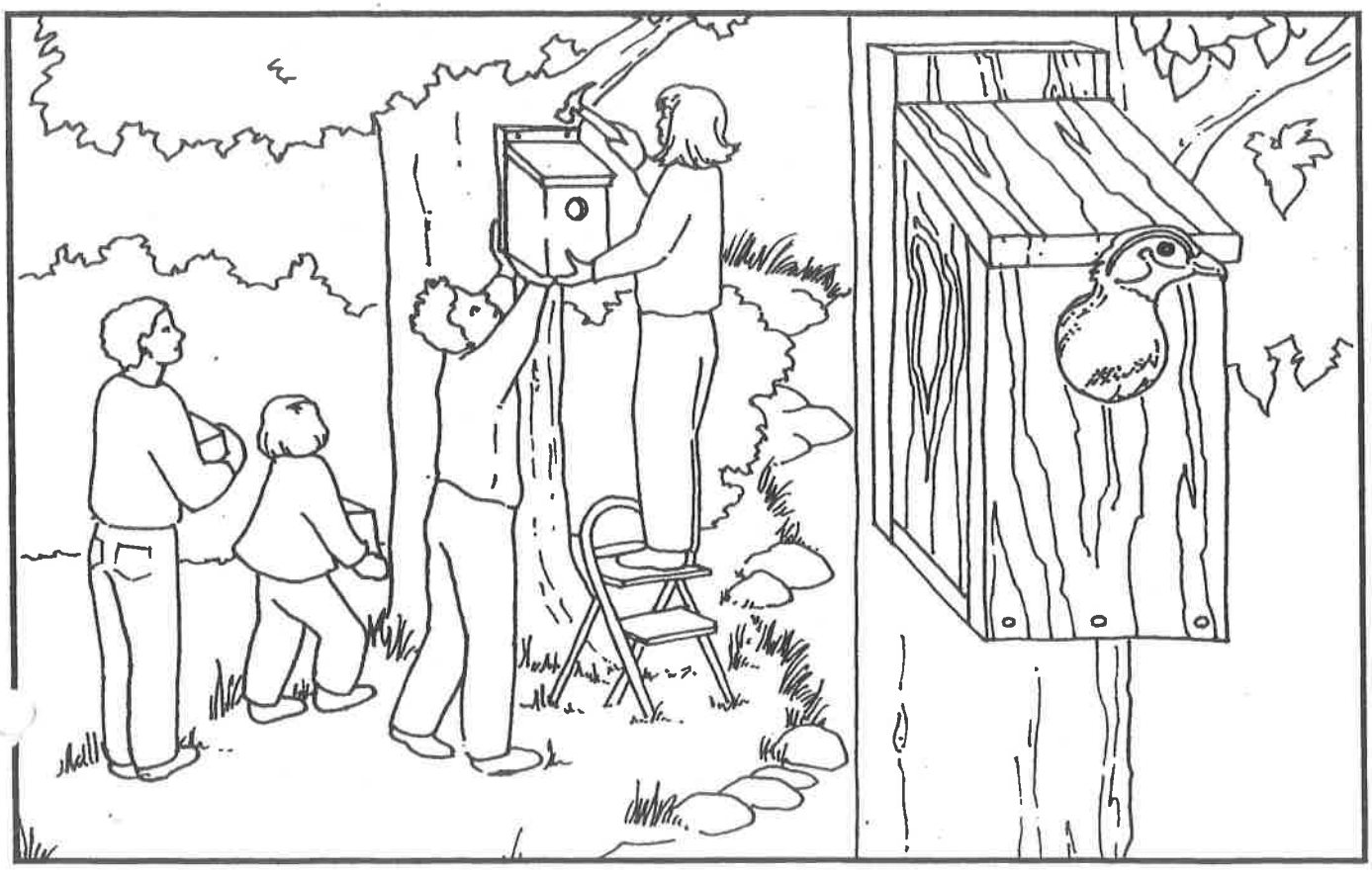


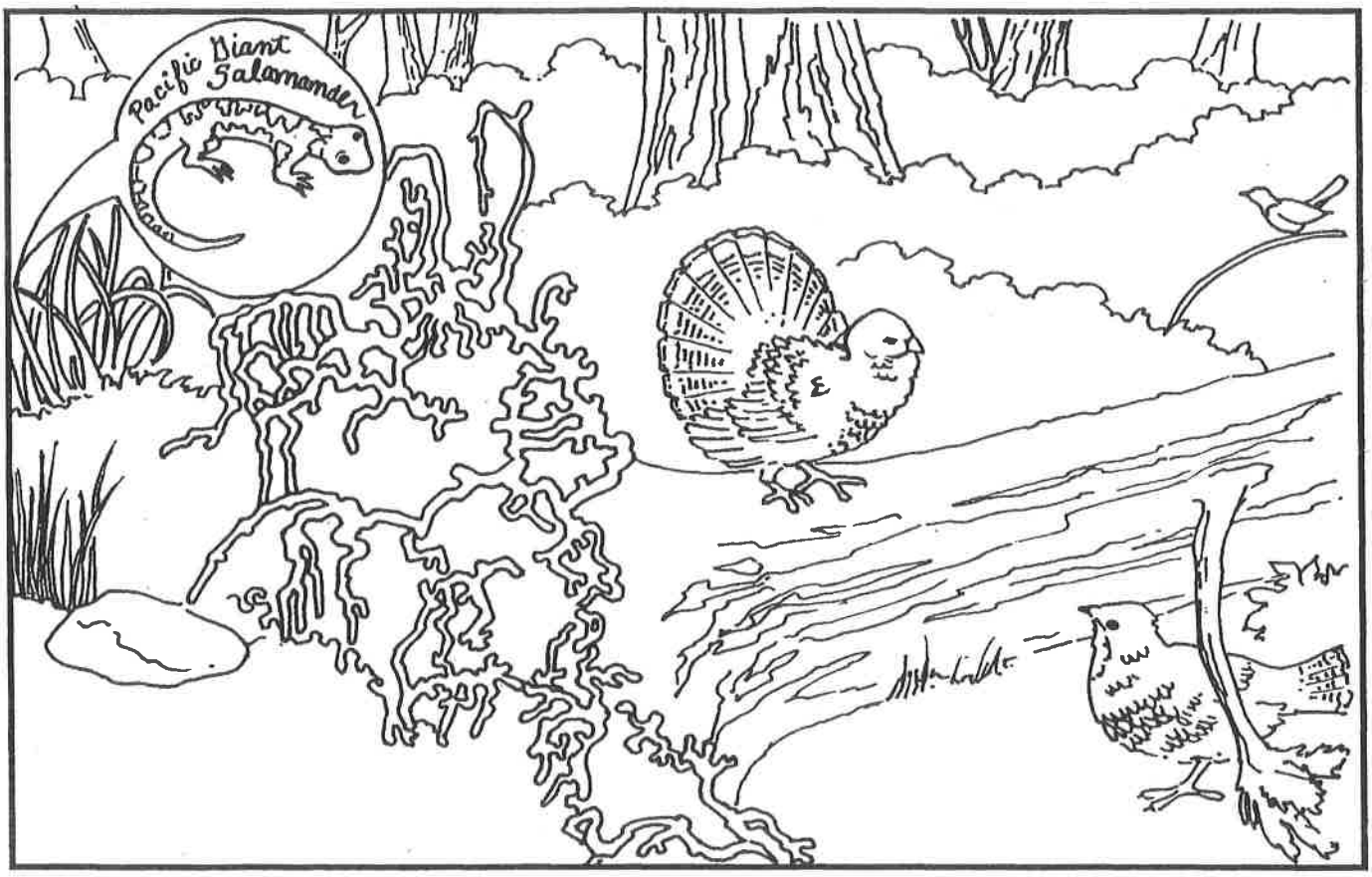
Marking Storm Drains Many people don't know that materials that go into the storm drains on our streets often go directly to the closest stream or other body of water. Work with community groups to mark storm drains to warn people not to dump oil and other poisons into them.





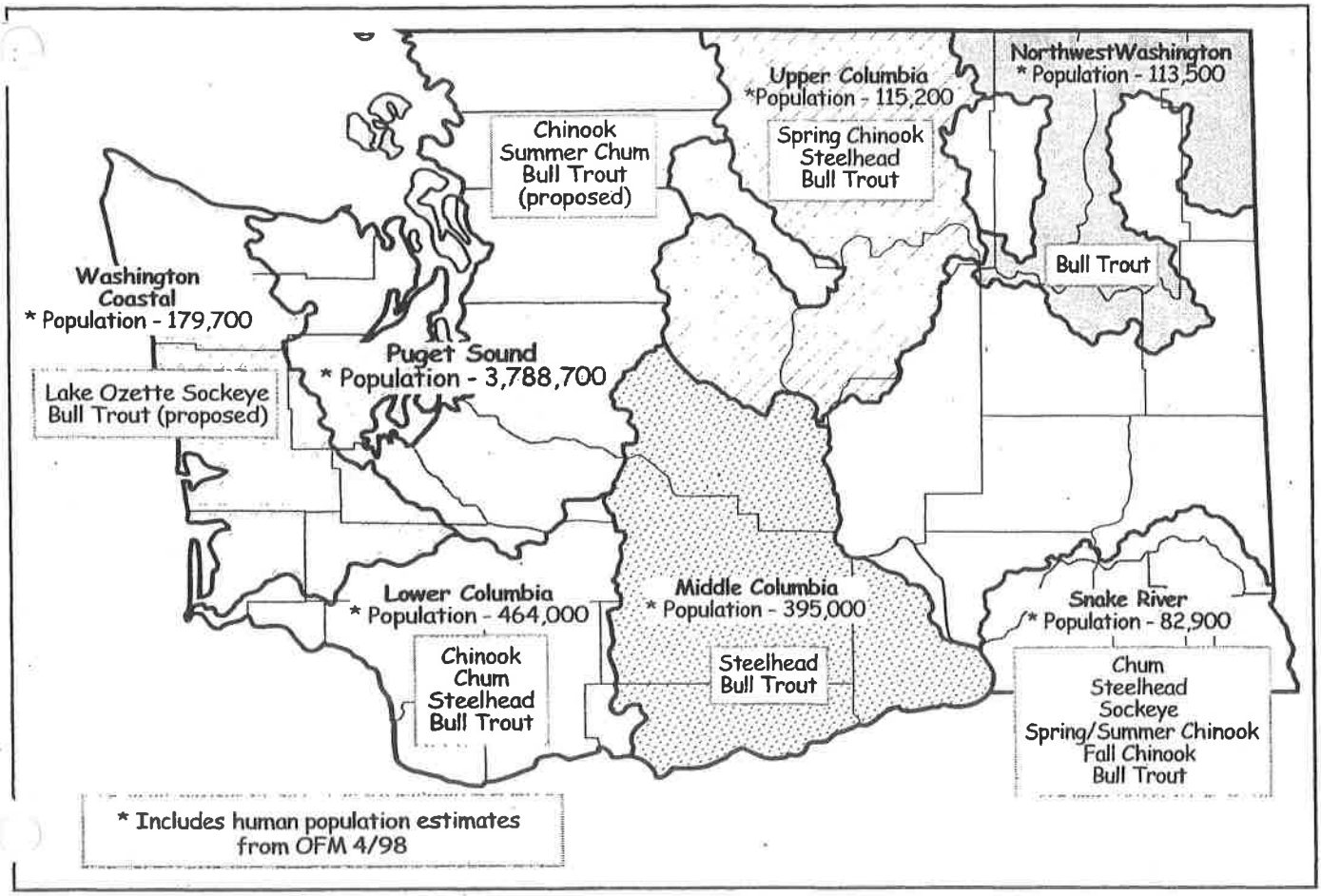
Bird Boxes Wood ducks, chickadees, swallows, and many other bird species need abandoned woodpecker holes or similar tree cavities for nesting. When too many trees are removed from the watershed, these birds don't have a place to live. Building and hanging bird boxes provides a home for these birds.





Nurse Logs Trees are important to a healthy watershed even after they die and fall. As fallen trees break down and become part of the forest floor, they "feed" the soil with nutrients that help other plants and trees grow. Many insects and animals depend on fallen trees for food and a place to live or hide. The bottom picture on this page shows a "nurse log" which provides the perfect mixture of food and space needed for new trees to grow.

Salmon Endangered Map



Name the Region where you live _____

List what species of salmon (or salmonids) are endangered where you live?

_____

PROJECT RESCUE PLEDGE

What ideas do you have to help salmon?
List what you can do to help keep your watershed healthy for salmon:

1. _____
2. _____
3. _____
4. _____
5. _____

Washington projectWILD

Fish and Wildlife Posters

Thank you for your interest in the Washington Department of Fish and Wildlife Outreach posters. The Fish and Wildlife posters consist of 4 different full-color prints (measuring 24" by 36") painted in watercolors by acclaimed Washington artist Amy C. Fisher.

Each poster illustrates the rich diversity of Washington's fish and wildlife and the ecosystems that support them. There are 4 different posters available. Three horizontal prints:

Watershed Restoration Partnerships,
Washington's Shrub-Steppe Heritage,
Washington's Sea Stack Shoreline,

and one vertical Print:

Celebrate Urban Wildlife in Washington.

The Fish and Wildlife posters are available from a variety of non-profit organizations listed in this brochure. Buy these posters and support the organization of your choice listed below. The selling price for these posters will be $5 each, plus tax.

For information on becoming a poster sales partner, call the Washington Department of Fish and Wildlife's Cooperative Extension, Outreach and Partnerships Division, at (360) 902-2254.

Organizations

Asotin-Anatone School District
Asotin - 509-243-4147

City of Vancouver
Water Resource Education Center
Vancouver - 360-693-8478

Hands on Childrens' Museum
Olympia - 360-956-0818

Interpretive Center Volunteers
Ocean Shores - 360-289-1160

KBH Archers
Belfair - 360-275-8629

Kitsap Co. Cooperative Extension
Port Orchard - 360-876-7157

Learning Skills Center
Cheney - 509-359-2487

Mary E. Theler Community Center
Belfair - 360-275-4894

Methow Conservancy
Winthrop - 509-996-2870

Naval Undersea Museum
Keyport - 360-697-1537

Nisqually Reach Nature Center
Olympia - 360-459-0387

North Okanogan Sportsmen's Council
Oroville - 509-476-3391

North Olympic Salmon Coalition
Port Townsend - 360-379-8051

Port Townsend Marine Science Center
Port Townsend - 360-385-5582

Tacoma Nature Center at Snake Lake
Tacoma - 253-591-6439

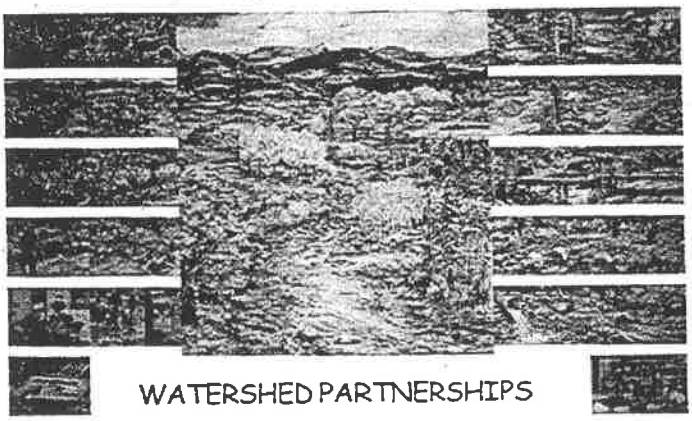
Tacoma School District
Tacoma - 253-571-1274

Washington projectWILD

WDFW Extension and Outreach
Helping People Help Fish and Wildlife

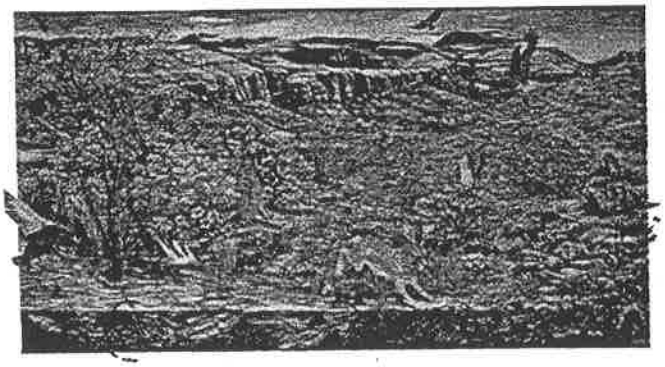
Fish and Wildlife Posters

These posters are produced by the Washington Department of Fish and Wildlife. They are sold by various non-profit agencies for $5.00 each, plus state sales tax. This allows the Department of Fish and Wildlife to recover printing costs, and provides a small source of operating capital for the non-profit groups.



WATERSHED PARTNERSHIPS

24" x 36" full-color poster provides "before and after" looks at typical watershed restoration projects involving volunteer workers and partnerships. The inset shows a restored watershed, relating healthy environmental features to the restoration work taking place around the border.

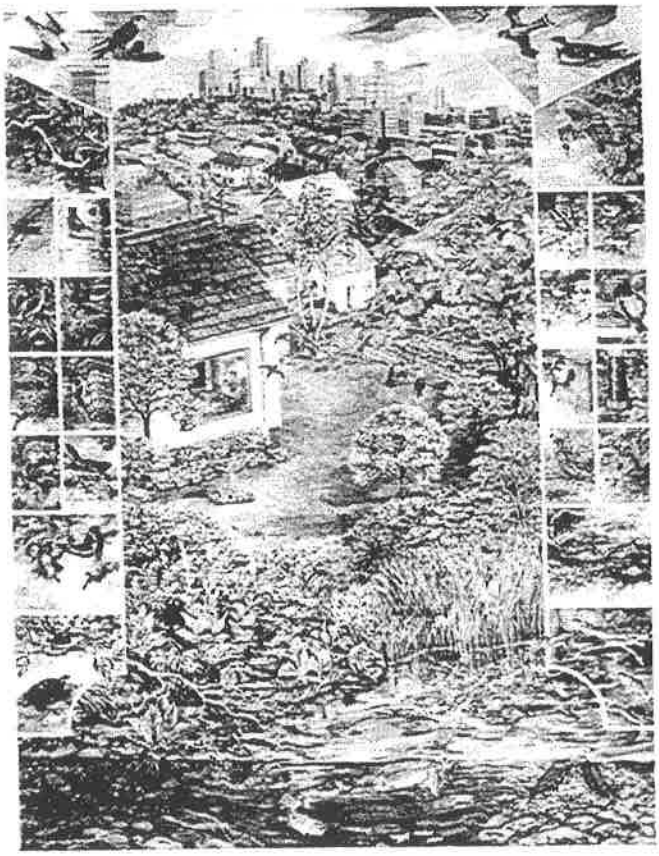


SHRUB-STEPPE ECOSYSTEM

24" x 36" full-color poster shows a broad cross-section of life in the shrub-steppe ecosystem, with commonly seen mammals, reptiles, amphibians, birds, fish and invertebrates represented in their typical habitats.

SEASTACK SHORELINE

24" x 36" full-color poster shows a north coast ecosystem featuring sea stacks, along with a variety of shoreline, intertidal, tide pool and undersea life.



CELEBRATE URBAN WILDLIFE

24" x 36" full-color poster shows an urban landscape, from the city skyline to a backyard, with a stream cross-section. Bordering the city scape are boxes identifying a selection of birds, mammals, reptiles, fish, amphibians and invertebrates commonly found in urban habitats.

Washington Department of FISH and WILDLIFE

Washington project WILD

WDFW Extension and Outreach

Helping People Help Fish and Wildlife