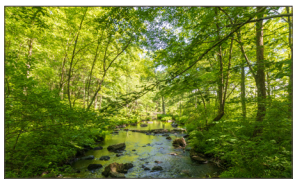
2nd-3rd Grade

SCIENTISTS ON THE GO

Go on a Salmon Habitat Hunt

1. Visit a stream, drainage ditch, or some other body of water.
2. Draw a line to match the habitat picture with the descriptions.
3. Observe your potential salmon habitat location. Compare the quality of your habitat with the pictures and descriptions. Then, answer the questions.

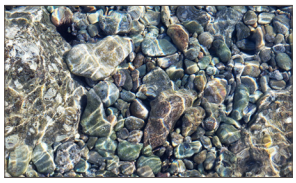


Water: Salmon need clean, clear, and moving water.
What could pollute the water?

Small Stones: Salmon lay their eggs in stream beds with small stones. Their nest is called a redd. Describe the bottom of the stream:

Tree Branches and Logs: Wood in the stream makes great habitat for small salmon. Do you think the water moves faster or slower next to the logs? Why?

Trees: They provide shade and keep the water from warming up too much.
Describe the trees. How big are they? Do they have leaves or needles?



Streambugs: Salmon love to eat little bugs. Streambugs tell us the water quality. Some, like this caddisfly, only live in very clean water! Draw and name your own streambug on the back of this activity.

How would you rate your habitat for salmon?
Color in the face that matches your rating.

We'd love to see your finished activity!

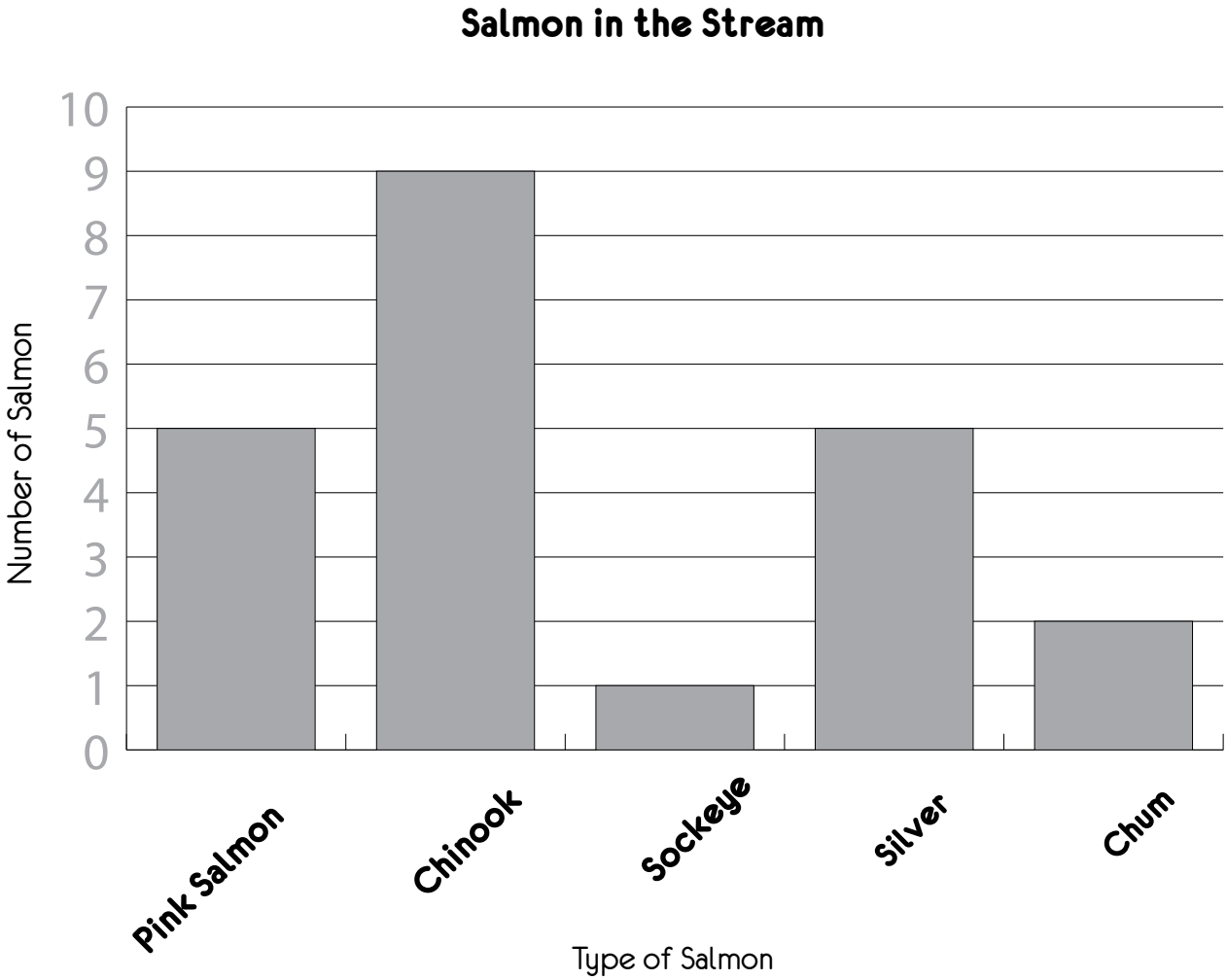
Email a photo to Thurston ECO Network at thurstoneetac@gmail.com.

WET SCIENCE CENTER

NISQUALLY RIVER EDUCATION PROJECT

How Many Salmon Are There in the Stream?

Practice reading a bar graph. The bar graph below shows the type and number of salmon found in the stream. Use the graph to answer the questions.



1. How many Chinook and chum salmon are there?

2. What is the total number of salmon in the stream?

3. How many more silver salmon are there than sockeye salmon?

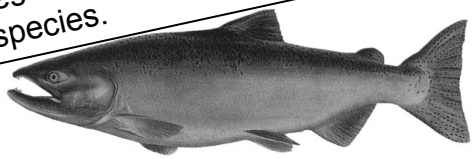
4. Which type of salmon are there the most of in the stream?

5. Which type of salmon are there the fewest of in the stream?

6. How many fewer chum were there than pink salmon?

Lushootseed Salmon Names
Lushootseed is the traditional language used by Puget Sound Coast Salish communities —see the name spelled out by each species.

Name that Salmon!



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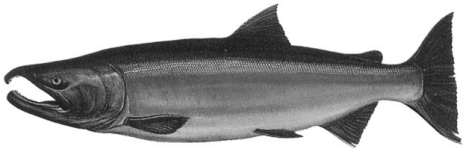
CHINOOK *'King'* – The largest of the pacific salmon. Average weight is a whopping 22 pounds (some over 120 pounds!). Prized by commercial, sport, and tribal anglers alike. You may find them spawning in small streams or even large rivers.



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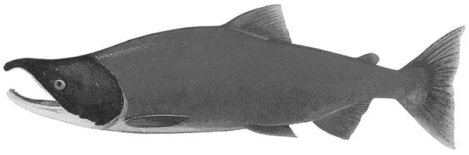
COHO *'Silver'* – Looking much like a 'King', but smaller. They spawn in the smaller streams and rivers of the Pacific Northwest.



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SOCKEYE – A very complex Pacific salmon spe-cies. They stay in freshwater one to three years be-fore the ocean journey, or perhaps never go to sea. Sockeye are the only Pacific salmon that spawn in lakes.

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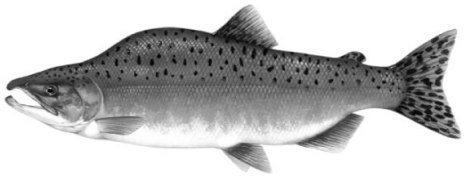
CHUM – The lowermost reaches of rivers and streams are where you will find this species spawn-ing. They migrate almost immediately after hatching, reaching ocean waters long before their coho, chinook, and sockeye cousins.



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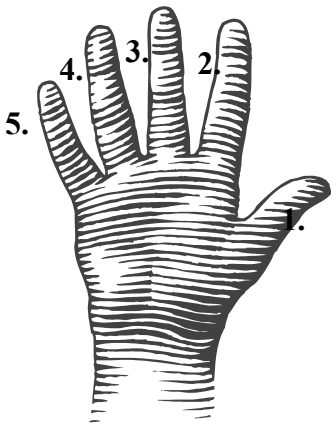
PINK *'Humpback'* – Pink salmon are the smallest and most abundant of the Pacific salmon. During their spawning migration, males develop a pro-nounced humped back.

An easy way to remember the names of Pacific salmon:



1. Your thumb rhymes with chum, for **CHUM salmon**!
2. You may use your pointer finger to sock someone in the eye, for **SOCKEYE salmon**!
3. Your middle finger is the largest finger for the **CHINOOK 'KING'**, the largest salmon!
4. Your ring finger is where you might wear silver...for a **COHO 'SILVER' salm-on**!
5. And your pinkie finger is the **PINK salmon**!

From Salmon Home Alliance Student Packet
salmonhomecoming.org

Salmon Lifecycle

Cut out the stages of a salmon with the facts. Arrange the stages to create a complete salmon life cycle. If you'd like, glue them onto another piece of paper and draw arrows between the stages. How is the salmon life cycle similar to other animals? How is it different from other animals?

Salmon begin their journey back to spawn in the same stream where they were born. They often travel hundreds of miles to reach home.

Baby salmon, called fry, live and grow in freshwater streams. Slow-moving water and side channels are extremely important to keep them safe from predators.

When salmon hatch from their eggs, they are called alevin. The alevins have a yolk sac attached to their stomach. This is their first food source.

Adult salmon spend 2 to 6 years in the ocean. Salmon develop a pink color in their flesh from krill and other foods they eat.

Salmon spawn, lay eggs, and then die. Their bodies return nutrients back to the ecosystem. Salmon are keystone species. Salmon support 137 other species from bald eagles, orcas, river otters, osprey, to caddisflies.

Young salmon, called smolt, migrate to the estuary and then to the ocean. Their bodies adapt to the saltwater along the journey.

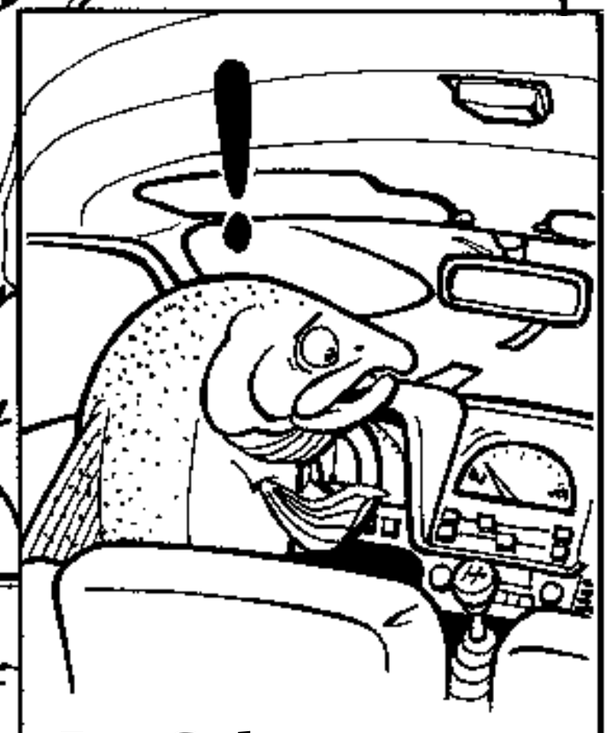
Salmon begin their lives as eggs in a gravel nest called a redd. Of the 3,000 eggs laid by a female, only 1-2 adult fish return years later.

Migration

Salmon Follow Their Senses!

Have you ever visited another city, and noticed that the water there tastes different from the water at home? Salmon can tell the difference between water from different places too! Young salmon memorize the smell of their home stream before they migrate to the sea. When they are ready to return to fresh water, they follow the smell home.

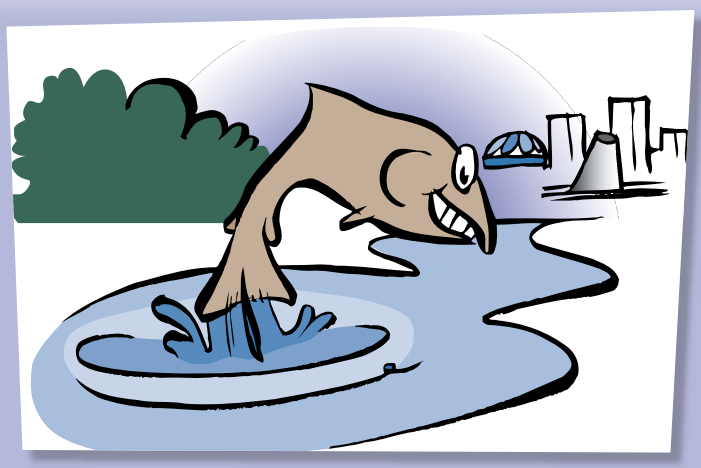
As the salmon migrate from the ocean to their home streams, their color and shape changes. Males get hooked jaws with sharp teeth. In some species, their backs get humps. Both males and females change color.



For Salmon, Fat is Where It's At

When they're living in the ocean, salmon eat a lot to store up plenty of fat. This fat is the "fuel" they need to get to their spawning grounds. Once salmon enter freshwater, they stop eating. So a salmon is a lot like a car that must make a long trip on one tank of gas. If anything delays the salmon, they may use up their fuel too soon — and not have enough to make it home.

Save the Salmon



Enviro CHALLENGER
City of Tacoma

Words to Find

- Anadromous
- Chinook
- Coho
- Dams
- Egg
- Gravel
- King
- Ocean
- Overfishing
- Pink
- Pollution
- Redd
- Responsible
- River
- Sediment
- Silver
- Sockeye
- Spawn

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

EnviroKIDS

Reduce · Reuse · Recycle · Respect · Responsible

Salmon Obstacle Course

South Sound GREEN

Background:

Salmon have an incredible life cycle that involves thousands of miles of travel, multiple body changes, and survival tricks. Salmon are anadromous, meaning they begin their lives in freshwater, spend most of their lives in saltwater, then return to freshwater to spawn. Many species rely on salmon for their survival and are culturally significant to the Coast Salish people. Learn about the salmon life cycle and the challenges they face with this fun obstacle course that will get you moving!

Procedure:

Keep in mind that all of these obstacles are suggestions! Get creative in coming up with your own salmon obstacles!

1) You are going to begin the obstacle course as a salmon egg, buried in the gravel. Obstacle: Use couch and chair cushions, pillows, and blankets to make gravel. "Bury" yourself in the "gravel" and make yourself as small as you can to resemble an egg!
2) After emerging from eggs, salmon begin their lives as tiny, defenseless alevin – baby fish that use the yolk from their eggs as food, all while hiding in the gravel of the stream bed. Obstacle: Keeping your legs tucked into your chest, see how much you can move around. Alevin still need to stay in gravel to avoid being seen and eaten by predators.

3) You are now a fry! Fry emerge from the gravel and start eating small stream bugs, but are careful not to be seen by predators. Obstacle: Set up chairs or tables to crawl underneath. Be sneaky!
4) Once salmon are big enough to make their way down river and towards saltwater and the open ocean they are known as smolt. Obstacle: Find a staircase, nearby hill, or long hallway to run "downstream" (carefully!).

Grade Level: K-5th

Materials:

- Open, safe space to move around in
- Objects that can be used as obstacles – pillows, blankets, stairs/ outside hill or long hallway, etc.
- Adult pro-tip: use blue painters or masking tape to mark the course for "salmon" to follow

Vocabulary:

Anadromous: To hatch in freshwater, and migrate to saltwater only to return to have offspring in freshwater.

Alevin: 2nd stage of the salmon life cycle; newly hatched salmon with the yolk sac still outside its body, doesn't swim, and lives in spaces between the gravel.

Fry: 3rd stage of the salmon life cycle; when the salmon emerges from the gravel, can swim, and no longer has a yolk sac.

Ocean-going Adult: 5th stage in the salmon life cycle; salmon leave the estuary and head north for an average of 3-5yrs.

Redd: Salmon nest made from a female digging in the gravel with her tail.

Smolt: 4th stage of the salmon life cycle; when it enters the estuary.

South Sound GREEN

5) You've made it to the ocean, where your body starts to change and adapt to the saltwater. As an ocean-going adult, salmon spend several years and travel hundreds of miles (or more!), growing large and fast enough to eat larger organisms such as fish, shrimp and squid. Obstacle: Find a wide-open space to run around in, and stick two flags/markers at opposite ends of the space. Scatter tennis balls/small objects between the flags. Run back and forth between the flags, picking up a tennis ball (food!) on the way. Move fast so no larger predators (like orcas!) grab you!

6) After eating all the food available, it's time to return to your home stream to spawn. To do this, salmon use a lot of tools, including a powerful sense of smell and using the Earth's magnetic field as a compass! Once home, they swim upstream, fighting against rushing water and leaping over obstacles. Obstacle: Using the same staircase, hill or long hallway you went down before, climb back "upstream". Try to do so while staying on your belly the whole time!

7) Salmon have a lot of funny spawning behaviors! Males will fight with other males over females, while females will work to dig redds, or nests for her eggs dug into the gravel. Eventually, males and females will partner up to lay and fertilize the eggs. Obstacle: Find your pile of cushions that you emerged from before. See if you can "dig" to the bottom of the pile without using your hands – just by flapping your whole body against the pile!

8) After your successful salmon life, there's only one thing left to do – die! Though it may seem sad, these salmon are all at the end of their lives after spawning. As salmon carcasses break down, they provide valuable nutrients to nearby plants and animals, including tiny invertebrates that might become food for new salmon once they hatch. And then the cycle starts all over again! Obstacle: Make your best dead fish face (and take a picture, if you'd like)!

Keep Learning!

- Complete some activities in the Salmon Homecoming Activity Book
- Check out more education resources from the South Puget Sound Salmon Enhancement Group and learn about Kennedy Creek Salmon Trail
- Become a StreamTeam Salmon Steward and teach others about salmon!
- Share your pictures with us on Instagram and see other people's obstacle courses! Use the hashtag #GREENfromhome and find us at @southsoundgreen.

South Sound GREEN (Global Rivers Environmental Education Network) is a watershed education program in Thurston County that educates, empowers and connects thousands of local students in watershed studies annually. Through South Sound GREEN, participants engage in science and engineering practices related to water quality in South Sound. For more information, visit southsoundgreen.org.

Environmental Sector

PEI PACIFIC EDUCATION INSTITUTE

Cole gets to hold a lot of fish in this field of work!

Cole Baldino
Salmon Habitat Restoration Manager
South Puget Sound Salmon Enhancement Group

TYPE OF WORK
I manage habitat restoration projects throughout watersheds to benefit salmon life and reproduction, as well as for all the species that rely on them.

Salmon Habitat Restoration Manager

TYPICAL DAY: A typical day of work is usually split between the field and office. A day in the field is best spent when the weather is good, but bad conditions don't stop us. We always walk a stream, take samples, and perform assessments to get a baseline understanding of the watershed conditions. Then it is back to the office to plan and prepare for restoration projects. This includes preparing designs, fundraising, and permitting. This is the hard part, but very worth it when your restoration project gets built.

CAREER PATHWAY:
I began my path to conservation as a member of my local Trout Unlimited chapter. I chose my college based on their programs and passion for the environment and majored in watershed science and fisheries biology. I refined my studies and focused in cold water fisheries, hoping to work with salmonids. I was lucky enough to have multiple hands-on internships throughout college with non-profit organizations. After graduation, I started working as a restoration manager.

Electroshock sampling

IMPORTANT SKILLS
Watershed science and fisheries biology.

EDUCATION
Bachelor's Degree

SALARY RANGE
$50,000-$75,000

TOOLS OF THE TRADE
Fisheries sampling equipment, survey tools, and computer software, and ArcGIS - my favorite computer map program used for almost every project and a necessity when taking a watershed-wide approach.

"The best part of my job is coming back to a restoration project years later and watching fish return and thrive in greater numbers and larger size due to our work." - *Cole Baldino*

PEI PACIFIC EDUCATION INSTITUTE

www.pacificeducationinstitute.org