

## **Spawning Survey Instructions:**

- 1) Contact Ric Balfour, [ric.balfour@verizon.net](mailto:ric.balfour@verizon.net), or 503-349-8055 about when you wish to perform the survey so that Ric can coordinate efforts as well as letting the landowners know that you'll be out.
- 2) If you haven't completed an ODFW liability waiver form, print one from the TRWC website and send to Jeff Fulop, ODFW, 17330 SE Evelyn Street, Clackamas, OR 97015.
- 2) Pick up survey back pack from Bill Hundley at Gales Creek Country Store – sign in and out.
- 3) If landowner have any questions, they can contact Ric Balfour or Jeff Fulop, ODFW STEP biologist, 503-657-2000, x2565 or cell 503-250-0160. Jeff and Ric's cards should also be in the materials.
- 4) Return survey back pack to Bill Hundley at Gales Creek Country Store.
- 5) Contact Ric Balfour about your survey experience.

## **STARTING THE SURVEY**

Start at the downstream end of the survey and walk upstream counting redds and live fish. The majority of redds that will be seen will not have fish on them so it will be important to become very familiar with the differences between steelhead redds, lamprey redds, cutthroat redds, and scouring associated with in-stream obstructions. Early in the season you may encounter coho redds which are still visible from the winter. Steelhead tend to be more shy than salmon. Look ahead for likely sections (tail-outs) where you would expect fish to be spawning and take your time approaching these sections. If you cannot positively identify a fish then record it as unknown.

## **FISH COUNTS**

While conducting your surveys you will always be wearing your polarized glasses and a hat to allow you to have the best viewing conditions. You might only get a glimpse of these fish and it will be important to try to positively identify the fish. Only record it as an certain species if you positively can identify the species, otherwise record it as unknown.

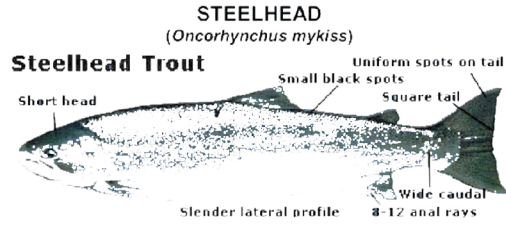
## **REDD COUNTS**

All steelhead redds observed will be counted. Redds of different species should be noted separately in the "Notes" section. Care should be taken not to confuse redds with scouring associated with roughness elements (large woody debris, boulders, rock outcroppings). A steelhead redd is a depression dug into the gravel by a female fish. These will be very obvious much of the time because the recently dug area will be lighter in color and less uniform than the surrounding substrate. Typically, steelhead redds are 3 to 4 feet wide and 6 to 8 feet long. Fresh individual redds are usually easy to identify. When you start seeing multiple redds with multiple fish identification becomes more difficult.

Lamprey redds can usually be distinguished from steelhead redds because the rocks will be placed upstream and to the side of the depression. Lamprey redds are usually about 24 inches in diameter and have a neat round appearance. Much of the time you will find lamprey redds in clusters within nice tail-out sections and is not uncommon to see multiple lamprey on each redd. Lamprey tend to spawn in the larger tributary and mainstem sections of streams.

Cutthroat redds will usually be found in the smaller tributary streams and are usually much smaller in size.

Thanks for your help! Also let us know if you have any suggestions, questions or observations that could not fit on the survey form.



Steelhead trout take habitat in tidal waters of estuaries and near shore. Adults prey on squid, euphausiids, amphipods and fishes; young eat insects, copepods, amphipods and other crustaceans and young fishes (e.g. sand lance, eulachon, herring). Steelhead predators are a variety of fish, birds and marine mammals.

Steelhead trout spawn in larger streams and rivers; localized and extensive Pacific Ocean feeding migrations. Mature adults enter rivers and larger streams year round, but generally concentrated as winter (November to May) and summer (May to October) runs. Steelhead may spawn more than once (3-40% of population). Eggs laid in gravel redds prepared by female in tributary stream or inlet/outlet of nursery lake from January to June. Eggs hatch in 4-7 weeks and fry emerge from gravel from mid-June to mid-August. Juveniles rear in freshwater for 2-4 years prior to migrating to sea as smolts from April to June. Only remain in estuary for a short period of time before moving offshore. Adults usually complete extensive feeding migrations in the Pacific Ocean before returning to spawn after 2-3 summers (range 1-4) in the ocean. Adults live to 6-8 years and may reach 1140 mm or 19 kg.

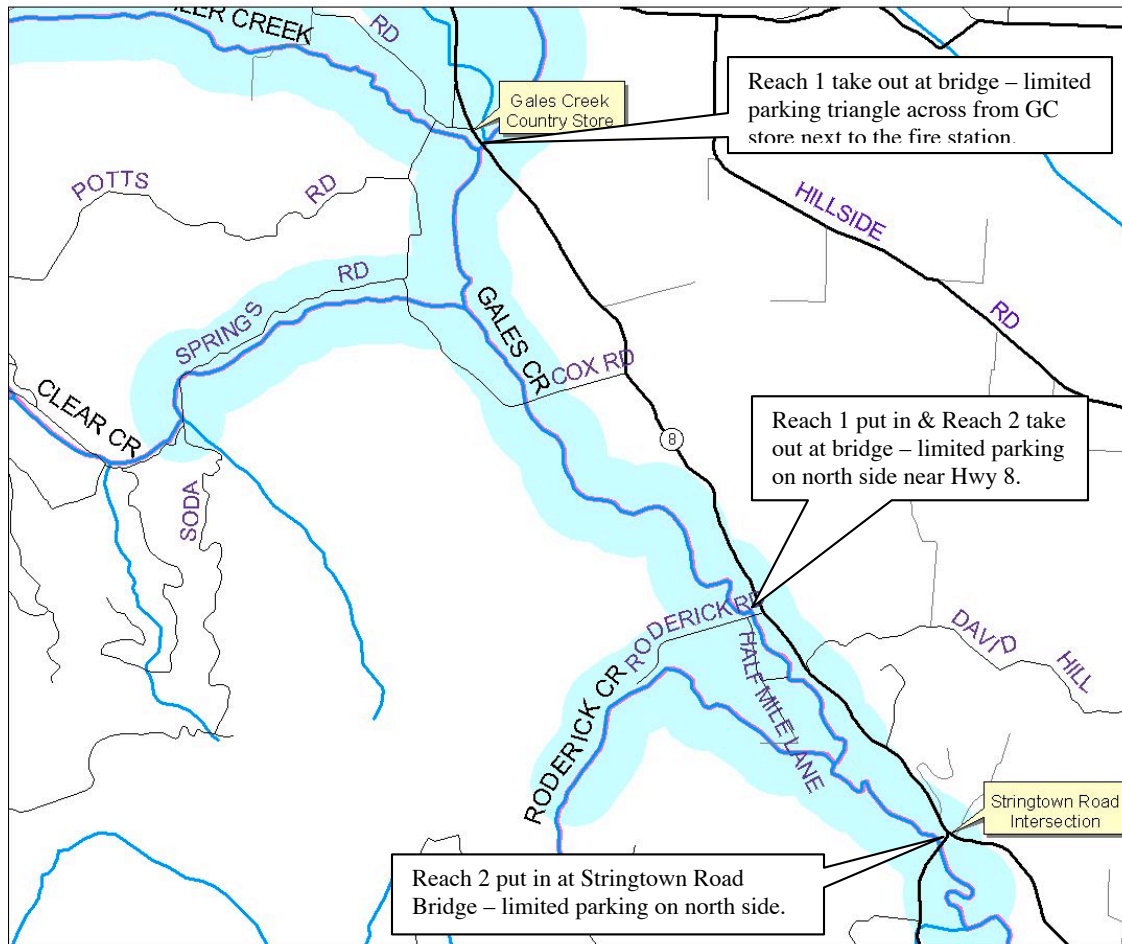
**Spawning Comparison:**



### Data collection and reporting

Survey forms will be collected by the project manager and data will be compiled by TRWC into a report that will summarize the results. The main aim is to establish the level (if any) of spawning occurring in the GC study area, and over time whether restoration efforts positively impact the number of steelhead observed spawning in subsequent years.

### Map of the Project Area and Spawning Survey Reaches



### Reach locations

**Reach 1.** Start at Roderick Road Bridge shuttle vehicle to for take out at Gales Creek Store on Hwy 8. From Roderick Rd Bridge, proceed upstream to Hwy 8 Bridge by Gales Creek Store. Distance approximately 14,000 ft  
Conditions include long shallow stretches, bedrock in stream with pools and beaver dams, overgrown banks. You will go under two farm bridges; at Kelly Creek (2000ft) and at Cox Road (8000ft).

### Reach 2. Start at Stringtown Road Bridge on Hwy 8.

Proceed upstream under one farm bridge at Cox Road and down to Roderick Rd Bridge. Distance approximately 8000 ft. Conditions include some shallow stretches, bedrock in stream with long pools and beaver dams, overgrown banks.