

As old as you?: life history of long-lived Upper Klamath Lake suckers

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The Lost River sucker can live at least 57 years!



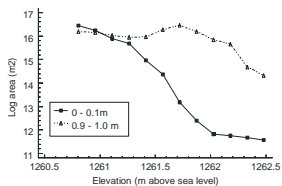
The shortnose sucker can live at least 33 years!

BACKGROUND

All fish have a life cycle that allows them, on average, to replace themselves for the next generation. Some species can do this with a life cycle of one year or less and their probability of success each year is high. Klamath suckers belong to a category of fishes that live long lives; they grow rapidly when young, mature late, produce huge numbers of eggs, have high natural mortality rates when young and low natural mortality rates when old. Their probability of success each year is low. The key to success for long-lived species is sufficient adult survival to allow for their replacement. Success in this context can range from occasional great success (a huge year class once every 10 -20 years) to low but sustainable success every year.

Where do adults live?

1. Most of the year they live in the lake, though some Lost River suckers may reside in the Sprague river.
2. Springtime spawning is in lakeshore springs and the rivers.
3. In the lake, they come into shallow water only in the spring to spawn. The rest of the year they prefer deeper water. Because of the shape of the lake, the area of shallow water increases proportionally more than the area of deep water as the lake drops.



Long-lived eggs machines

1. They can live at least 57 yr (Lost River sucker) or 33 yr (shortnose)



Earbone (otolith) from 55 yr old, male Lost River sucker

2. Annual egg production can be up to 235,000 eggs (LRS) or 57,000 (shortnose).
3. Females mature at ages of 5 – 10 yr, so lifetime egg production can be in the millions (if they live a “normal” life).

What happens to the eggs?

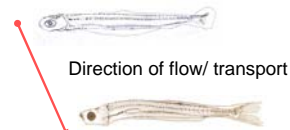
1. Some eggs are not fertilized.
2. Fertilized eggs develop based on temperature & can be expected to hatch in about 10 days.
3. Hatchlings stay in gravel for about 10 days before “swim up”.
4. During their stay in gravel, eggs and hatchlings have many predators.
5. Swim-up larvae drift, especially at night, & can be vulnerable to currents (good & bad—see following).



Shortnose larva (1/2 inch long)

What happens to all the larvae??

A – Source or spawning area



B – Sink or nursery area

1. If they stay in the lake, they are retained in nursery areas where some can survive to become juveniles
2. If they are transported to Link River, they are lost downstream

How do larvae stay in the lake?

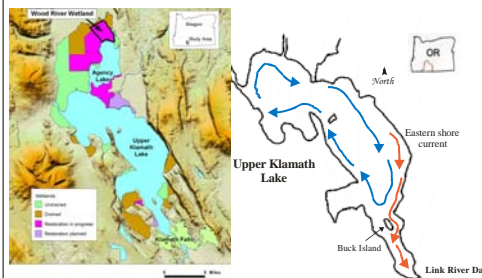


Figure 1. Location of Upper Klamath Lake spawning and nursery areas. Areas of retention related to topographic features.

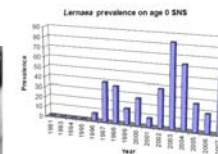
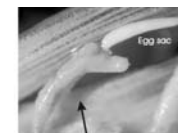
1. Retention can be created by complex shorelines like marshes and bays.
2. Retention can be created by the lake’s clockwise circulation.



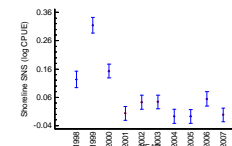
Lost River juvenile (3 inches long)

Is food a problem? Generally, no. Juvenile suckers love midge larvae – a resource in excess in the lake. By late summer midge larvae are 25-50% of their diet.

Parasites? A parasitic copepod began to show up in 1996-97. It’s impact is unknown.



How many juveniles survive? Fall shoreline catches have been very low since 2001.



For additional information please contact:

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