

**Coastal Cutthroat trout Shoal
Spawning in a high montane lake of
the Cascade Range of Oregon**

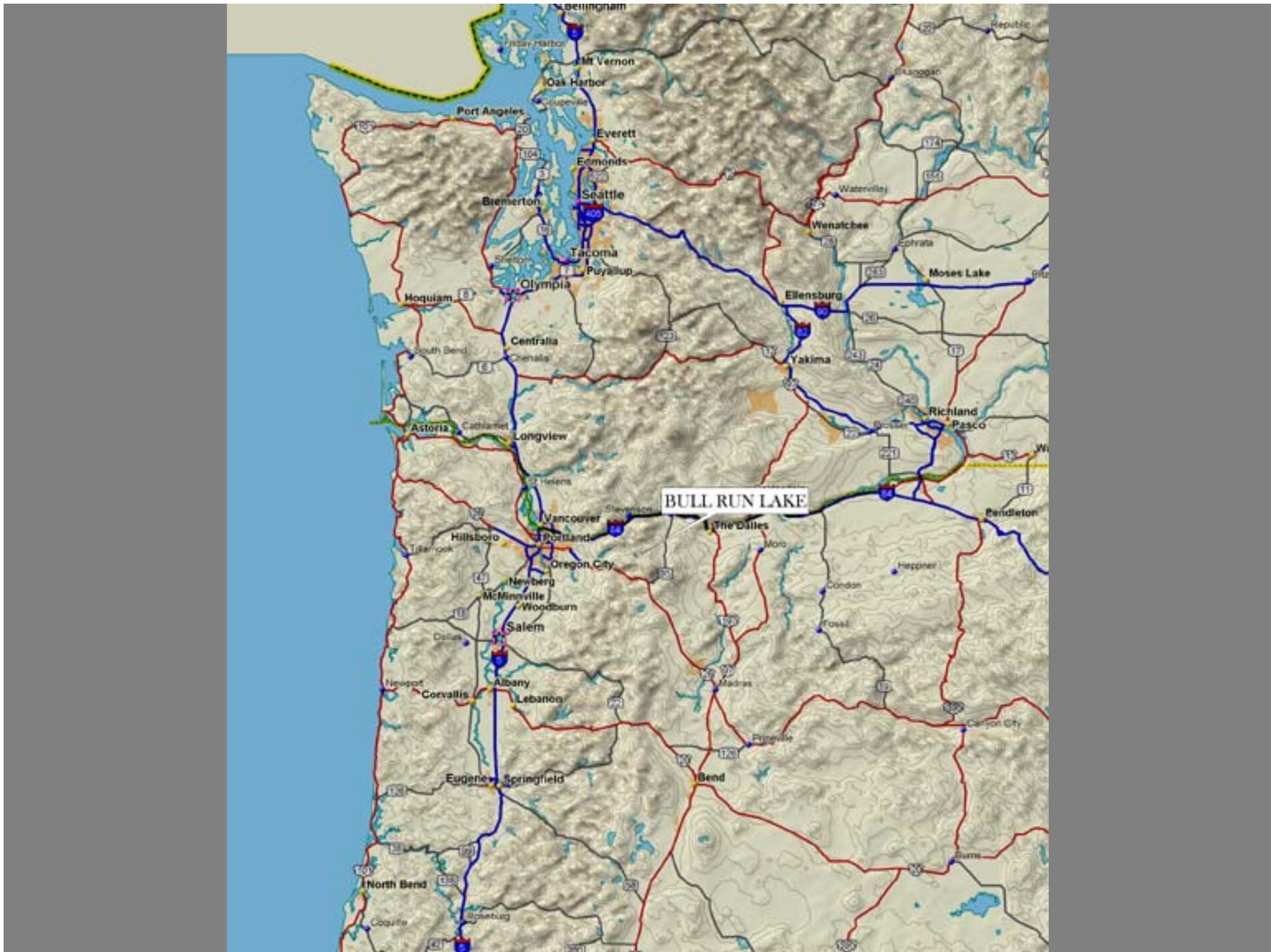
**David Saiget
Mt. Hood National Forest
Zigzag Ranger District**

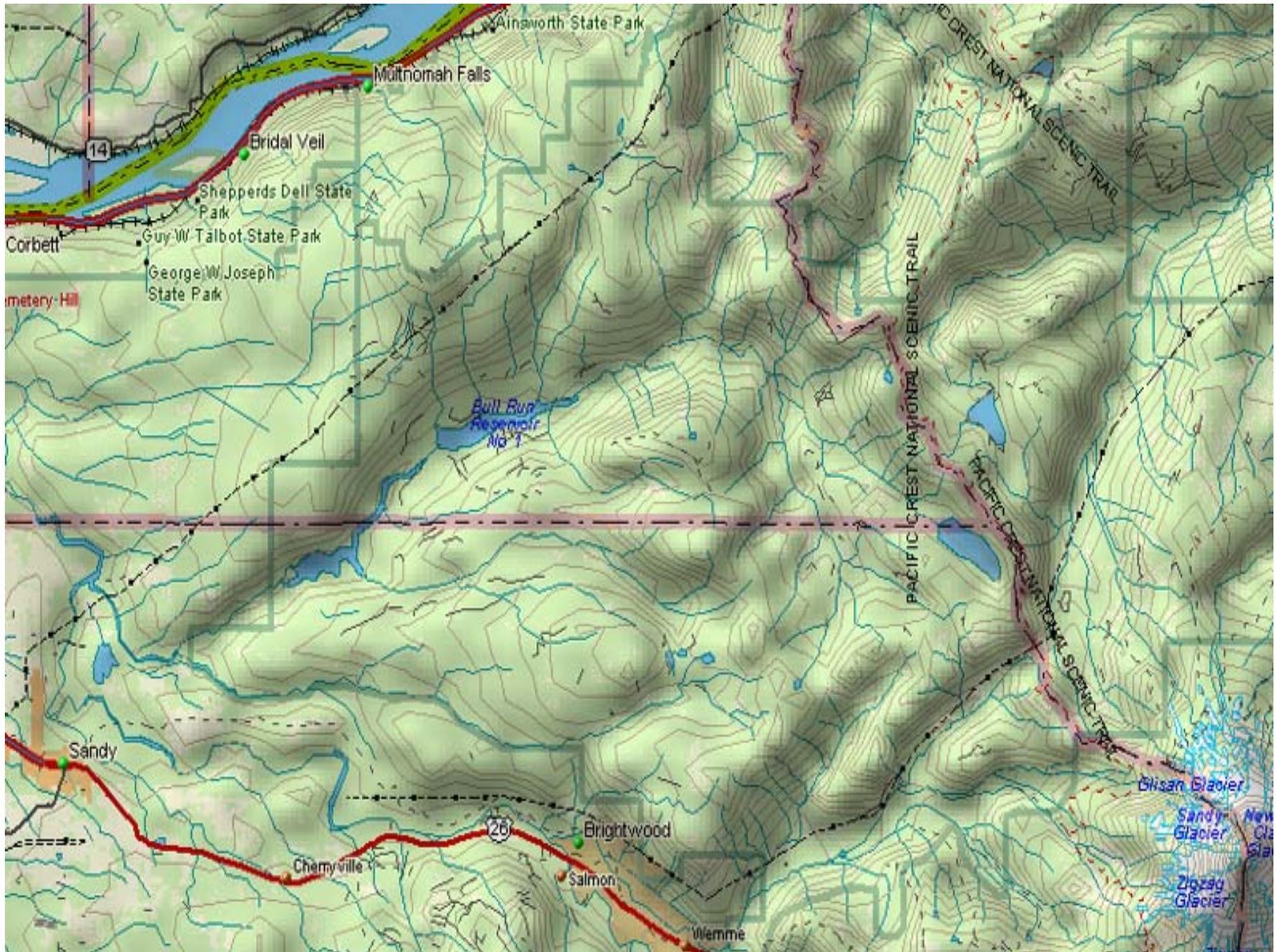




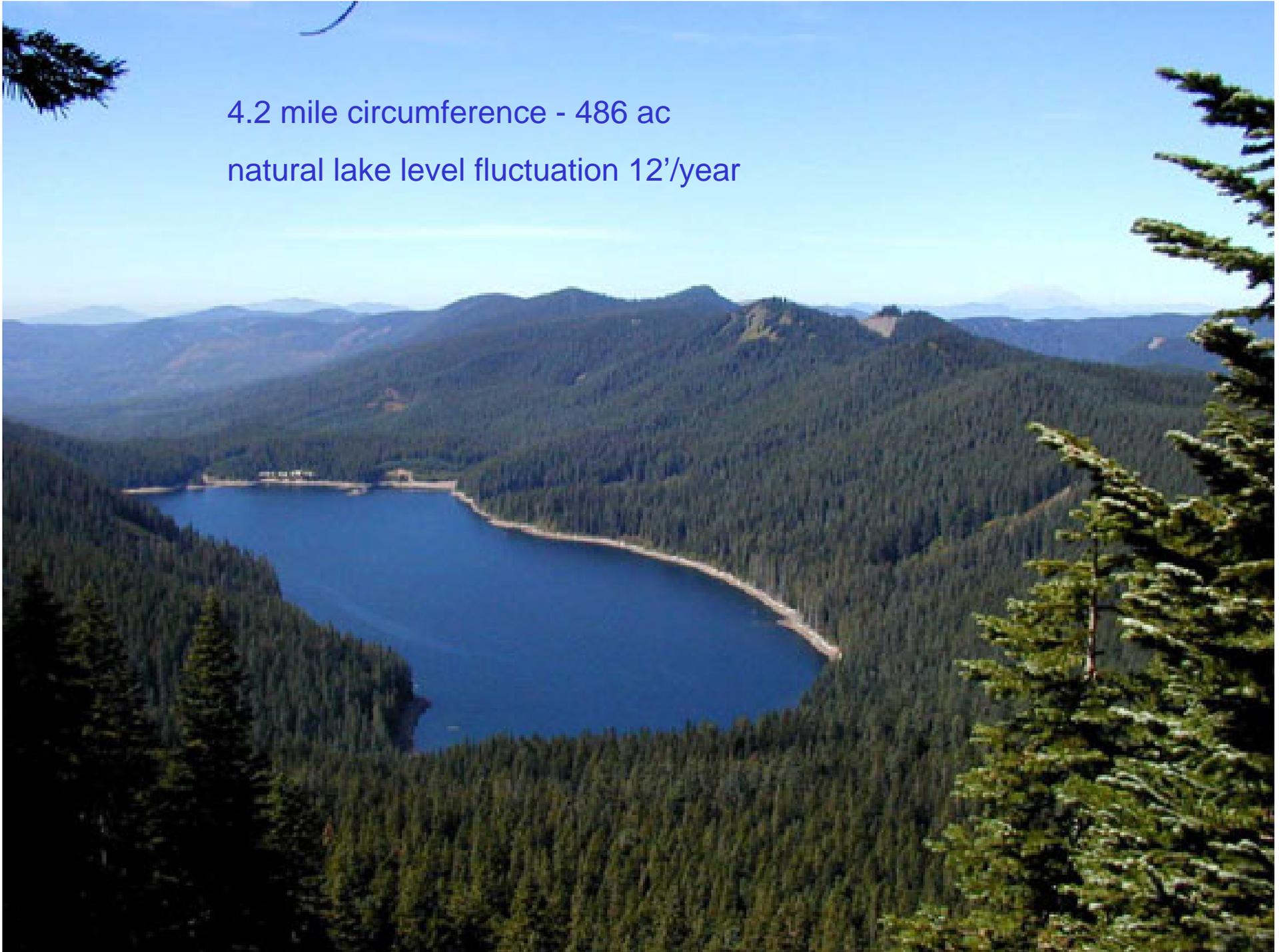
Bull Run Reserve established in 1895 which closed public access in the Bull Run Watershed which serves as the drinking water supply for Portland metro area





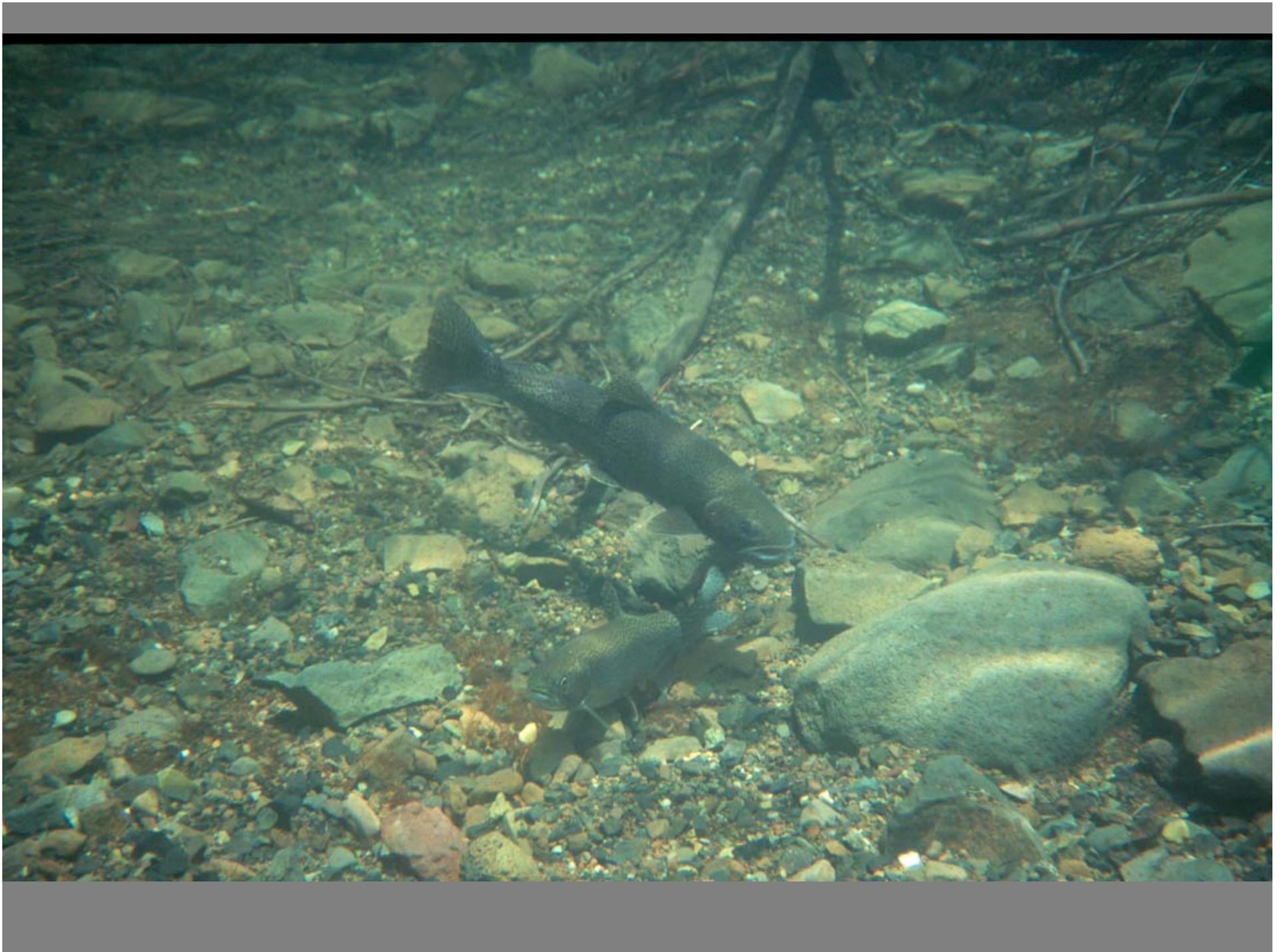


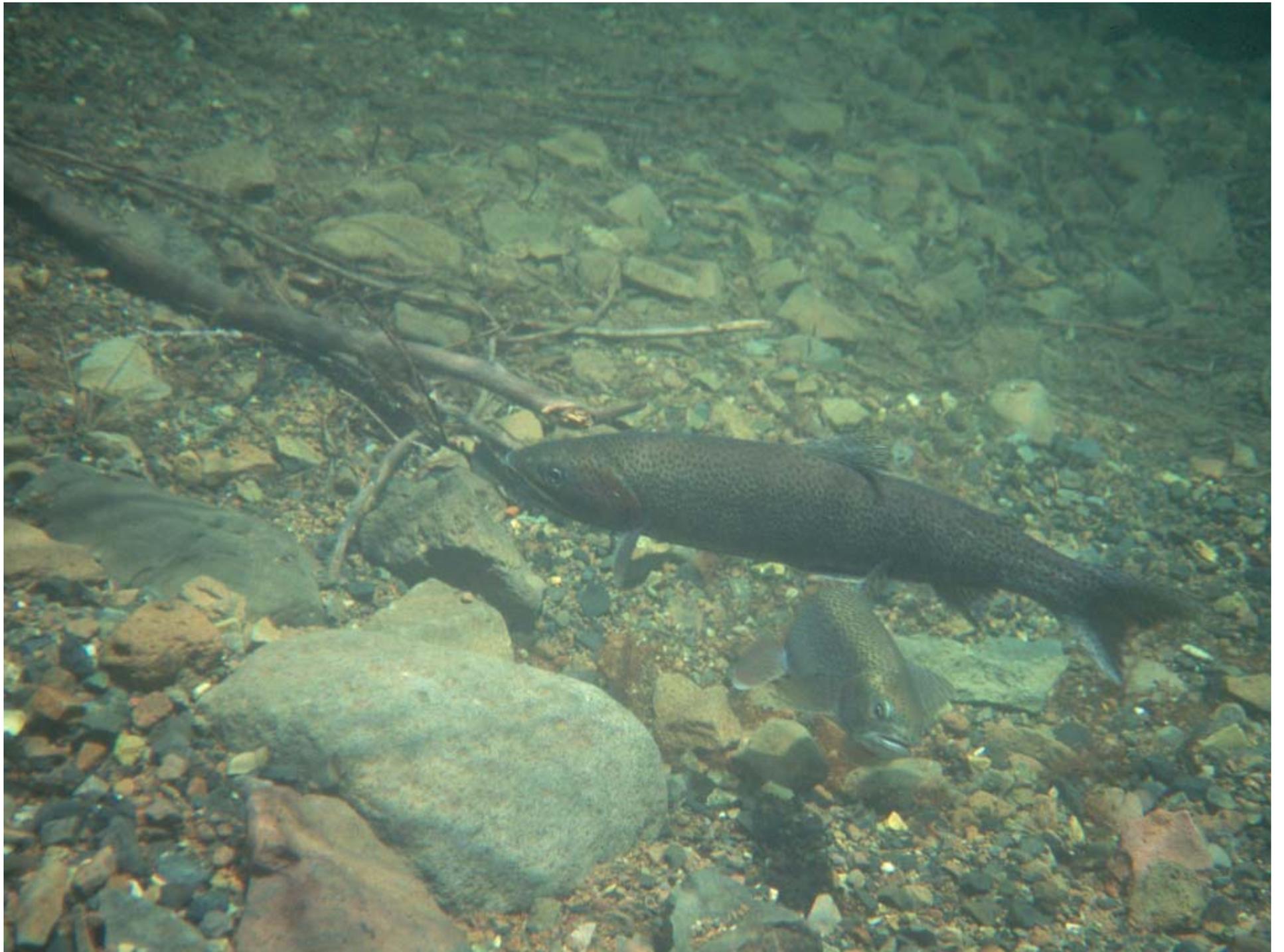
4.2 mile circumference - 486 ac
natural lake level fluctuation 12'/year











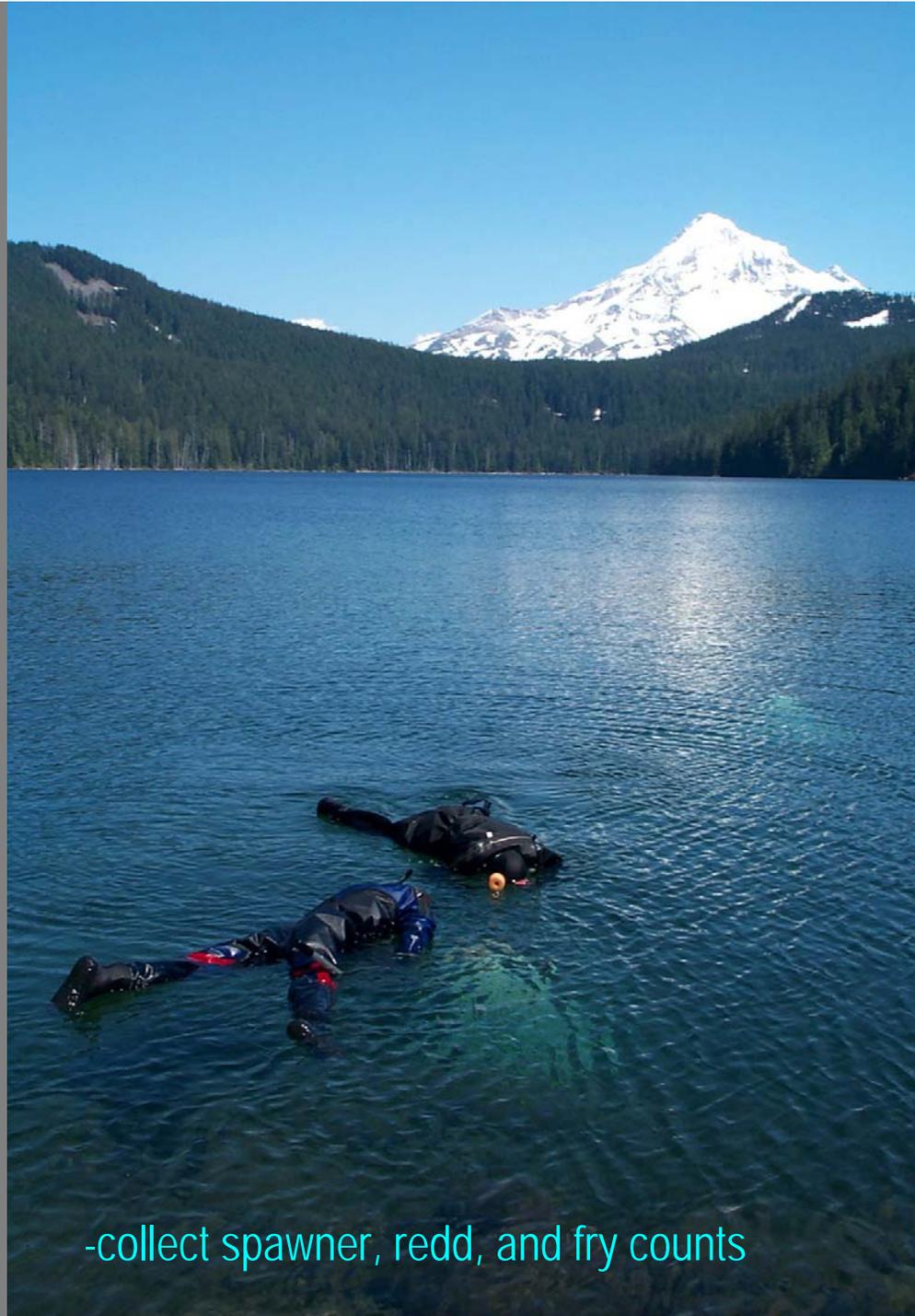
As the headwater source for Portland-metro area drinking water, lake drawdown can occur in times of high water need which may have an affect on the fish population





Objectives:

-determine extent of shoal spawning

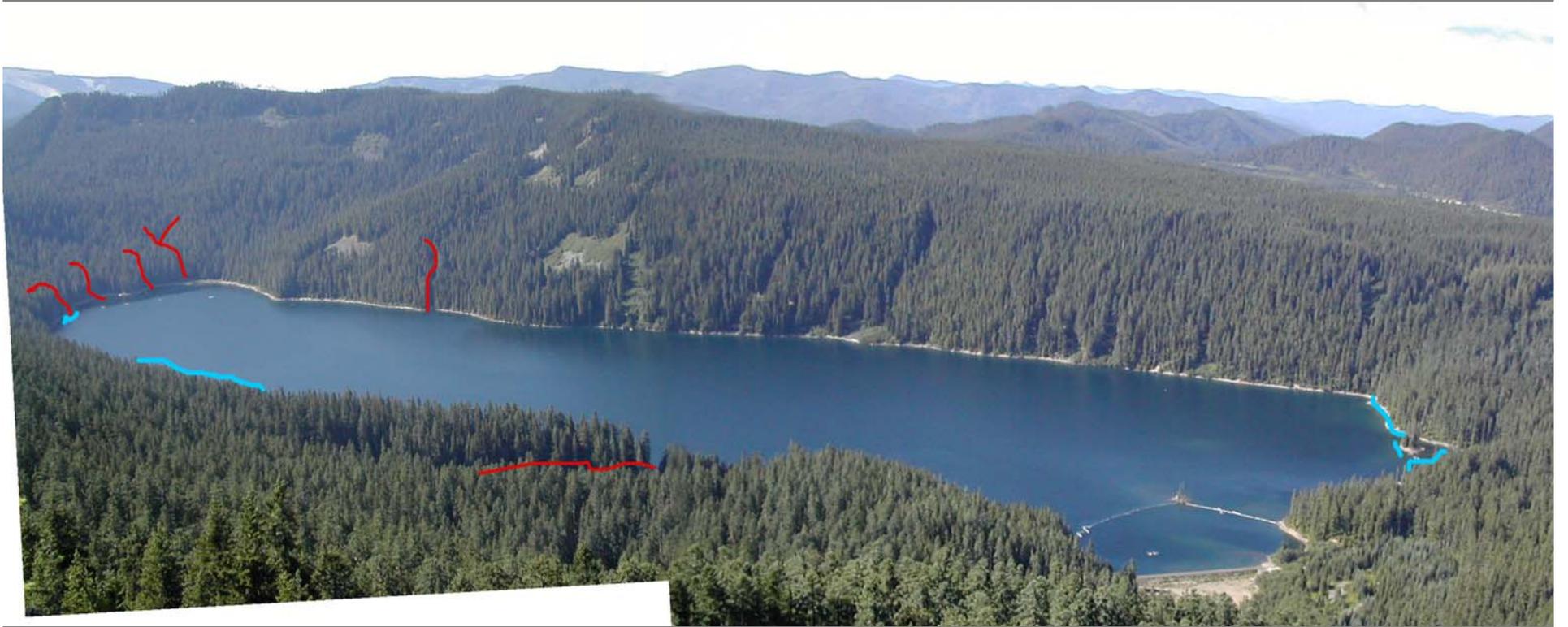


-collect spawner, redd, and fry counts



-observe shoal spawning behavior





































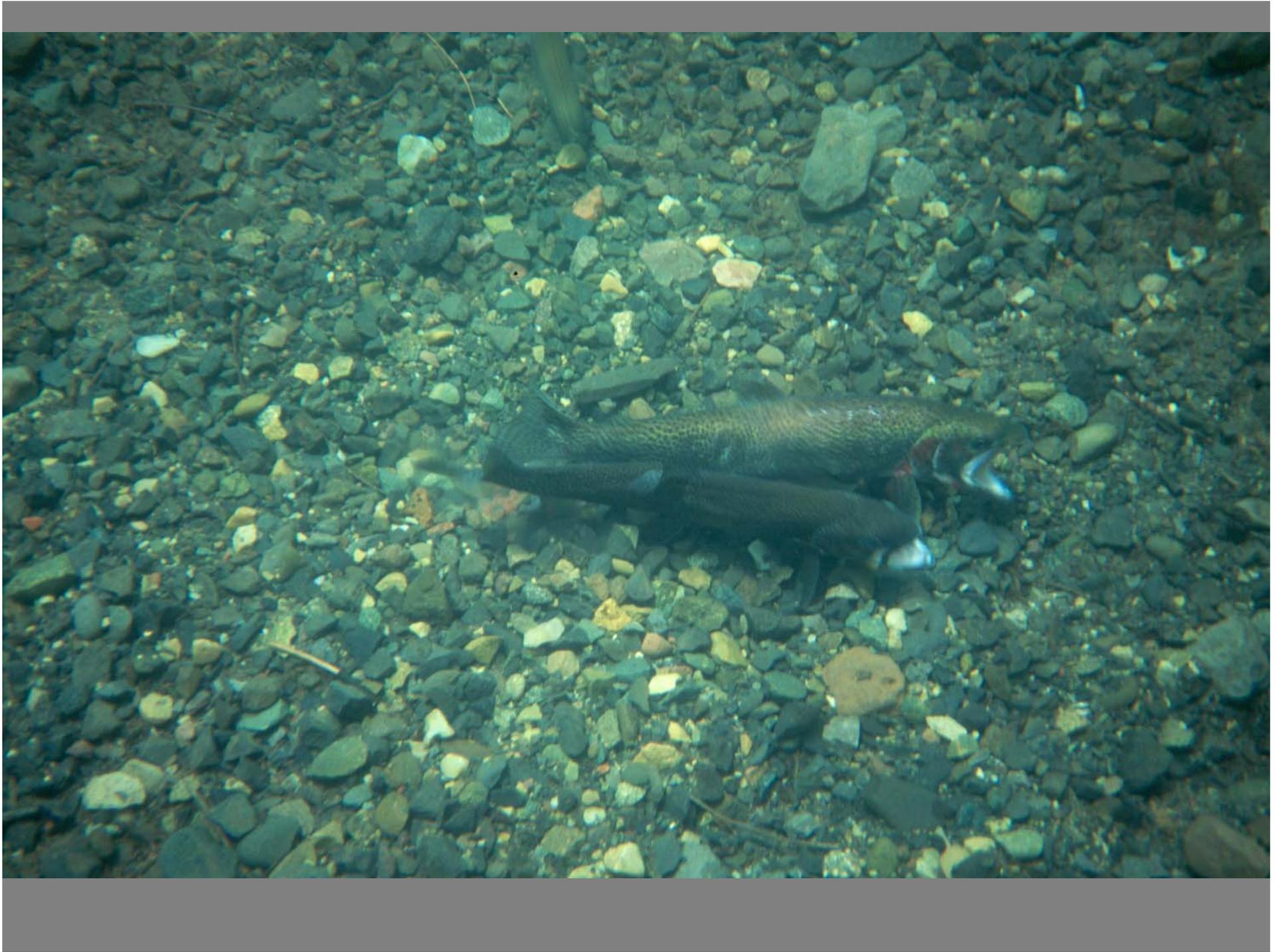






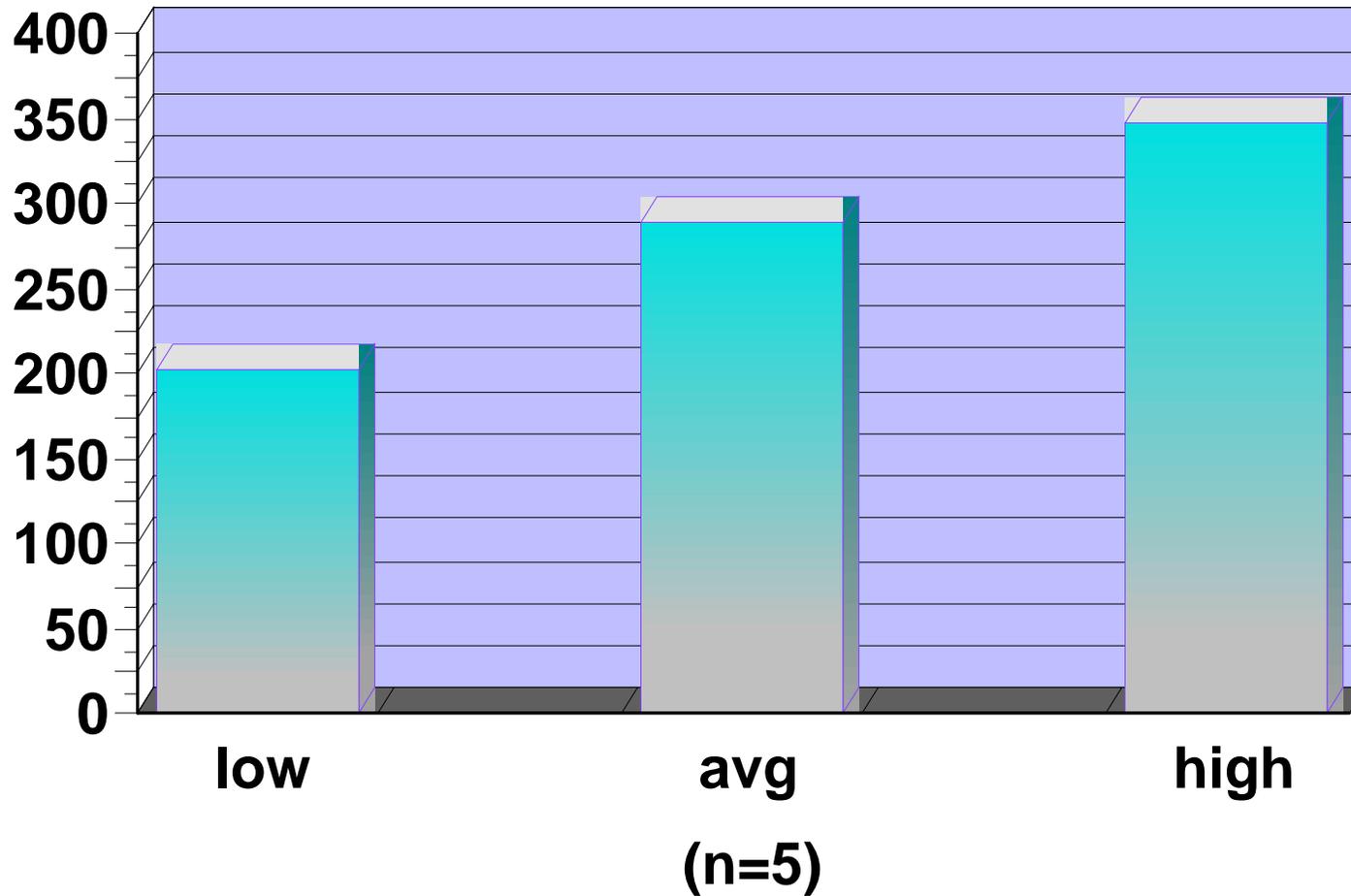






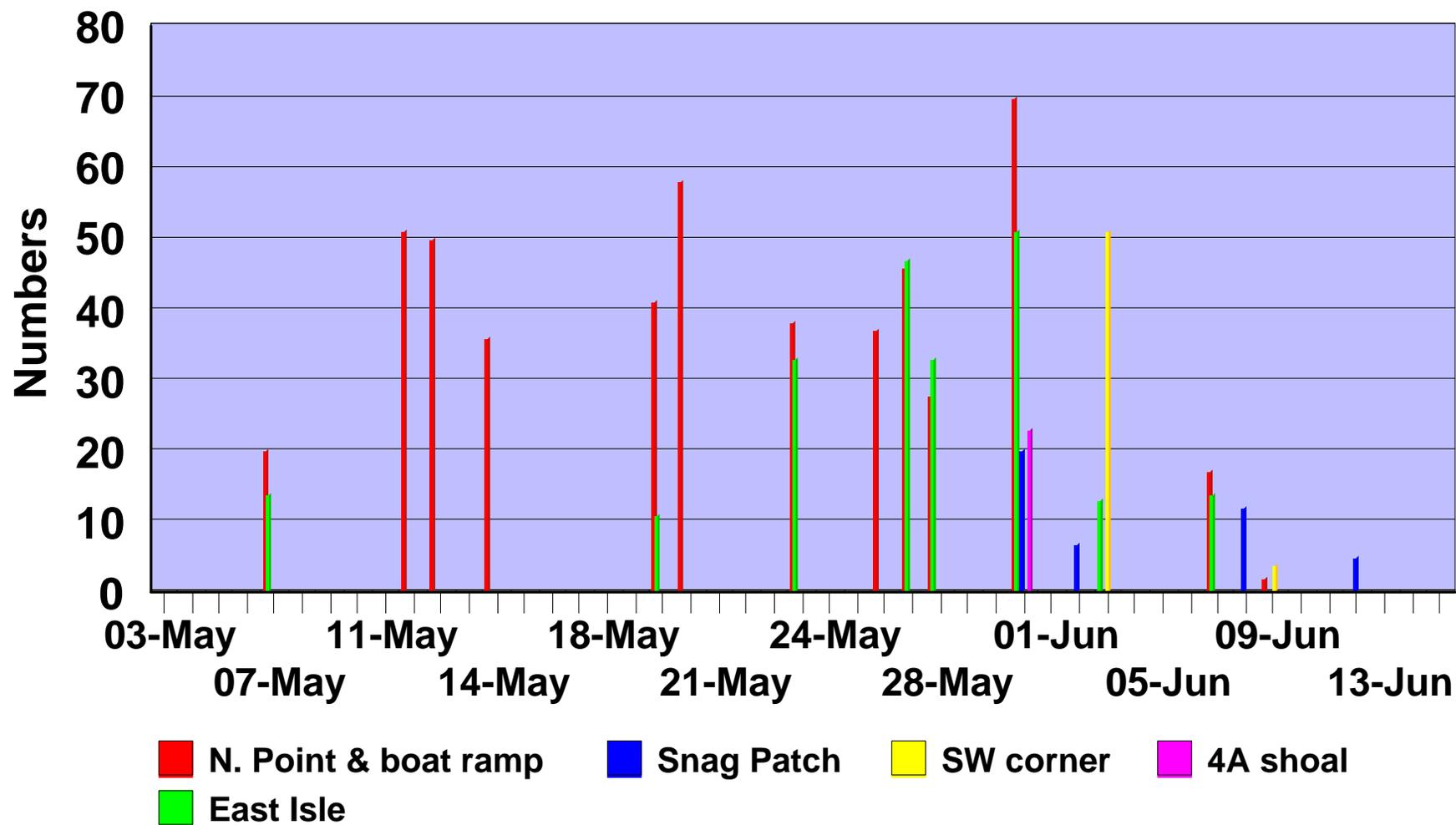


of Eggs in excavated tributary redds

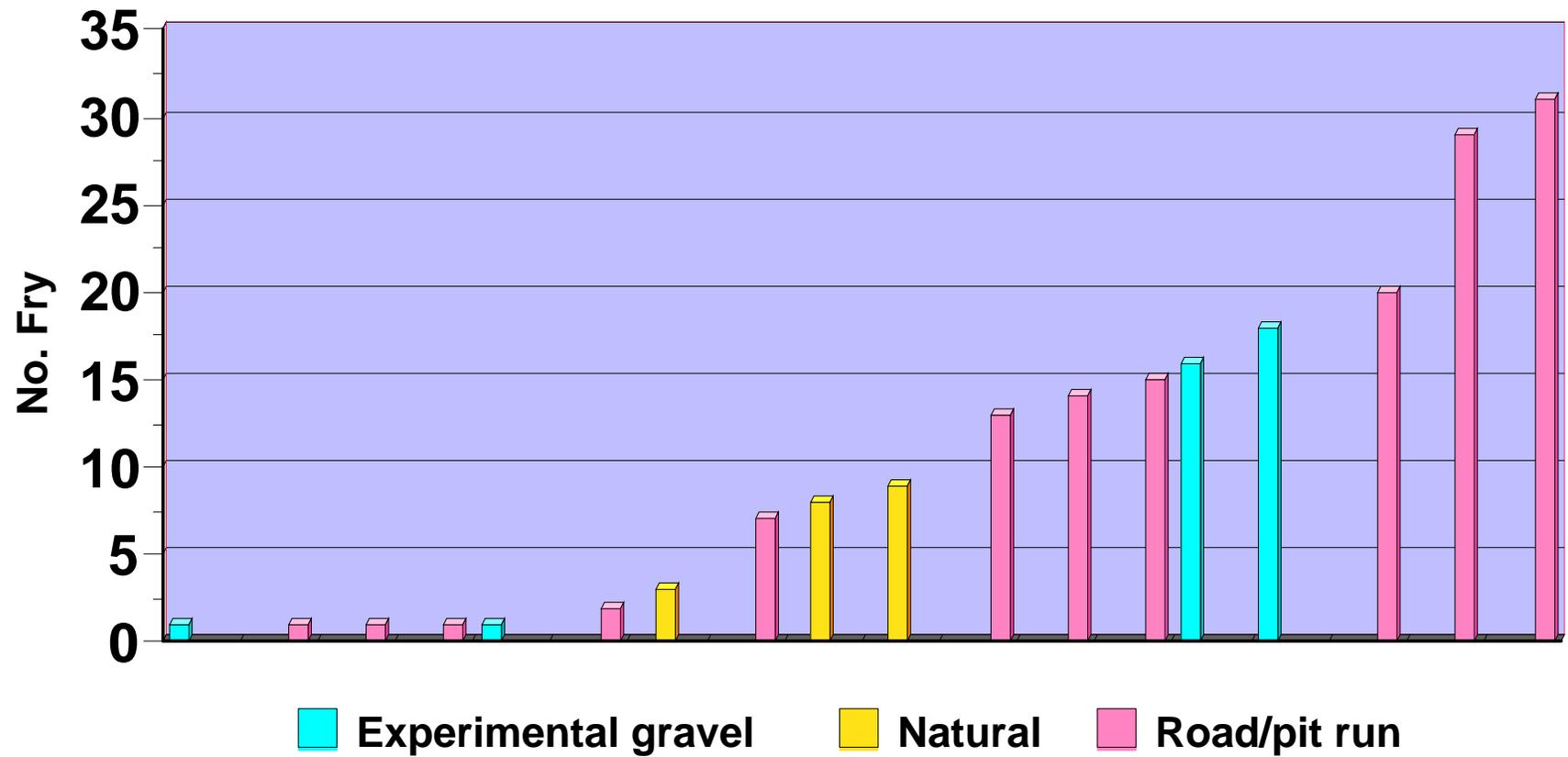


Avg length of females 14-18 inches

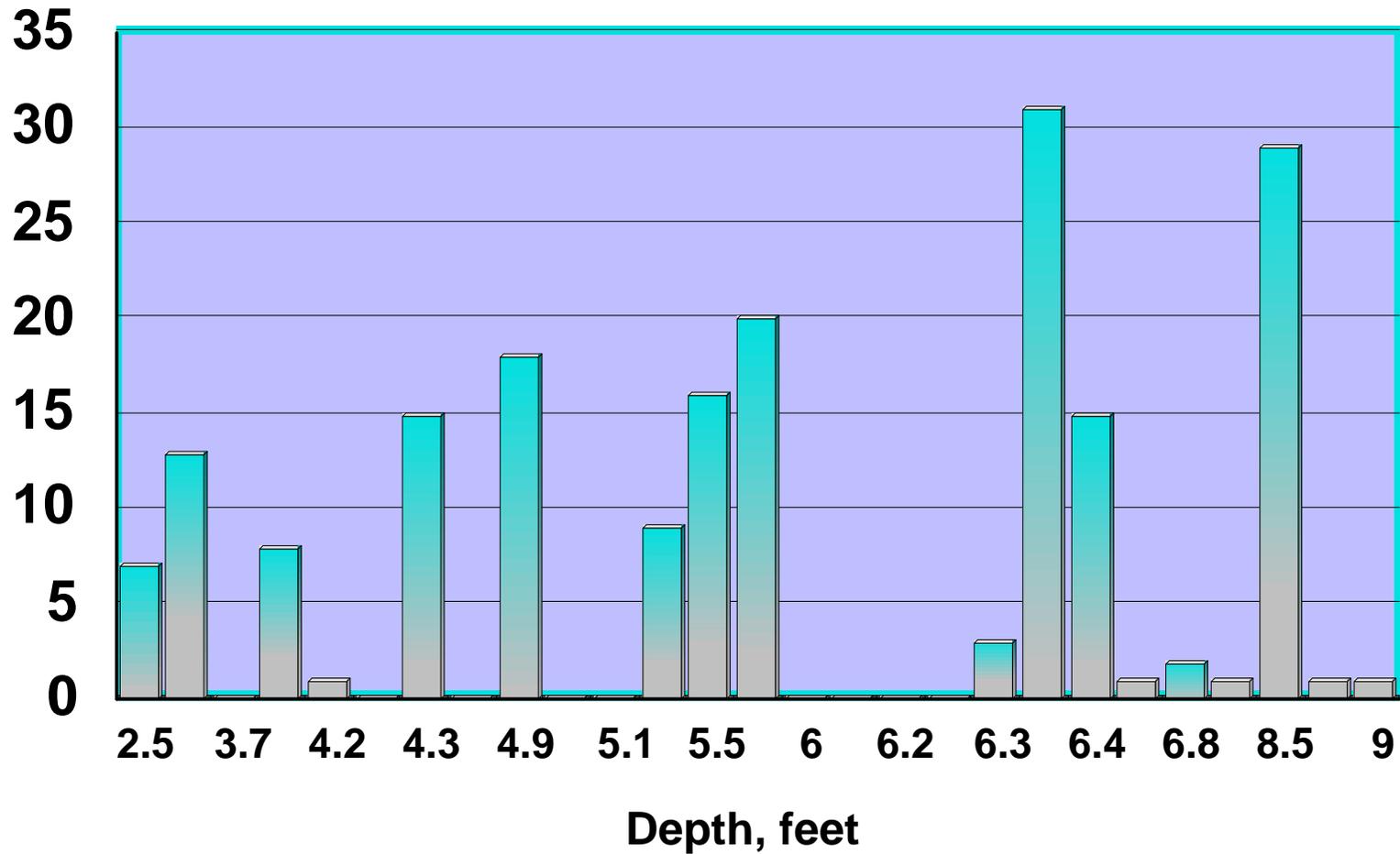
Shoal spawner counts, 2003



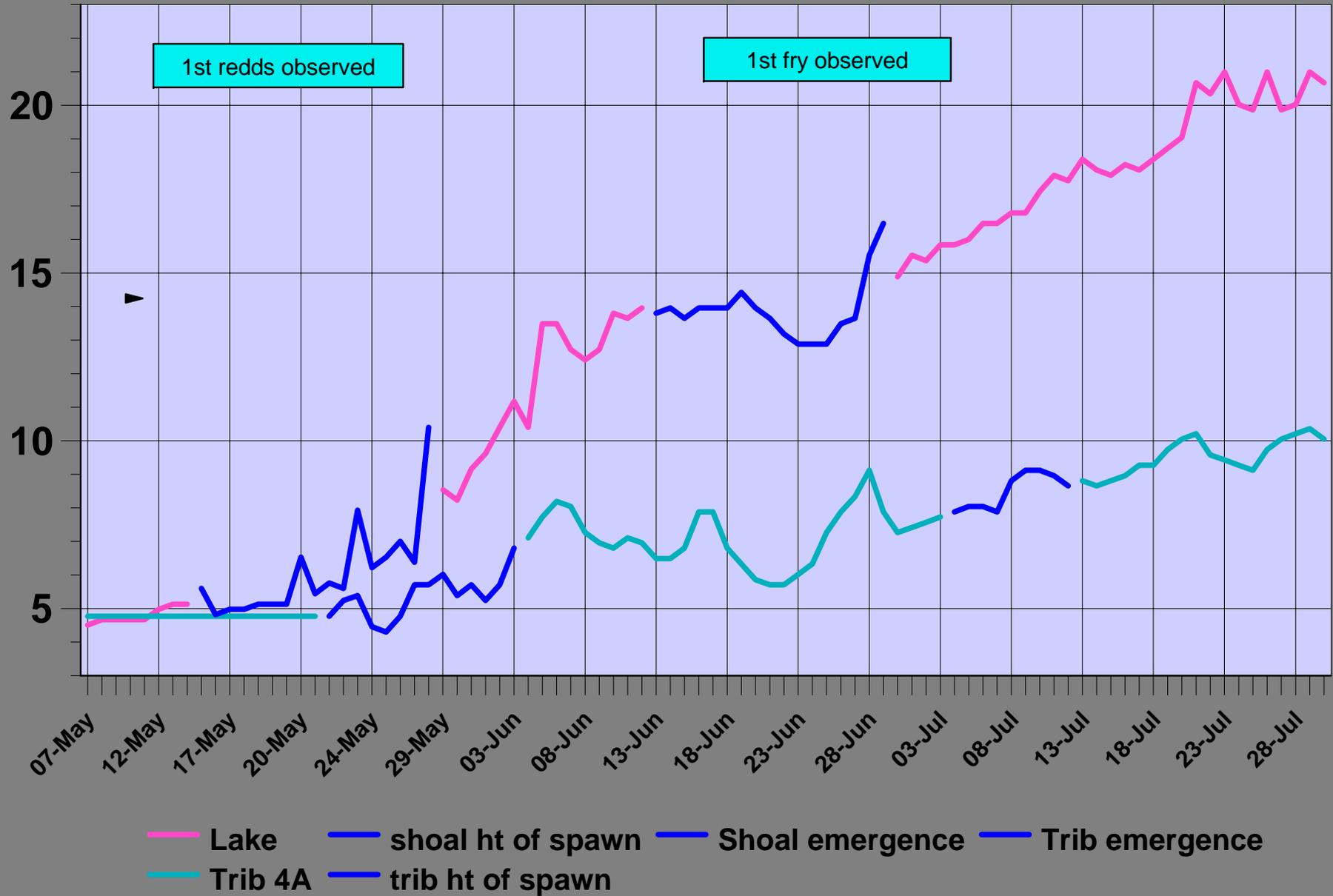
Fry production by substrate type

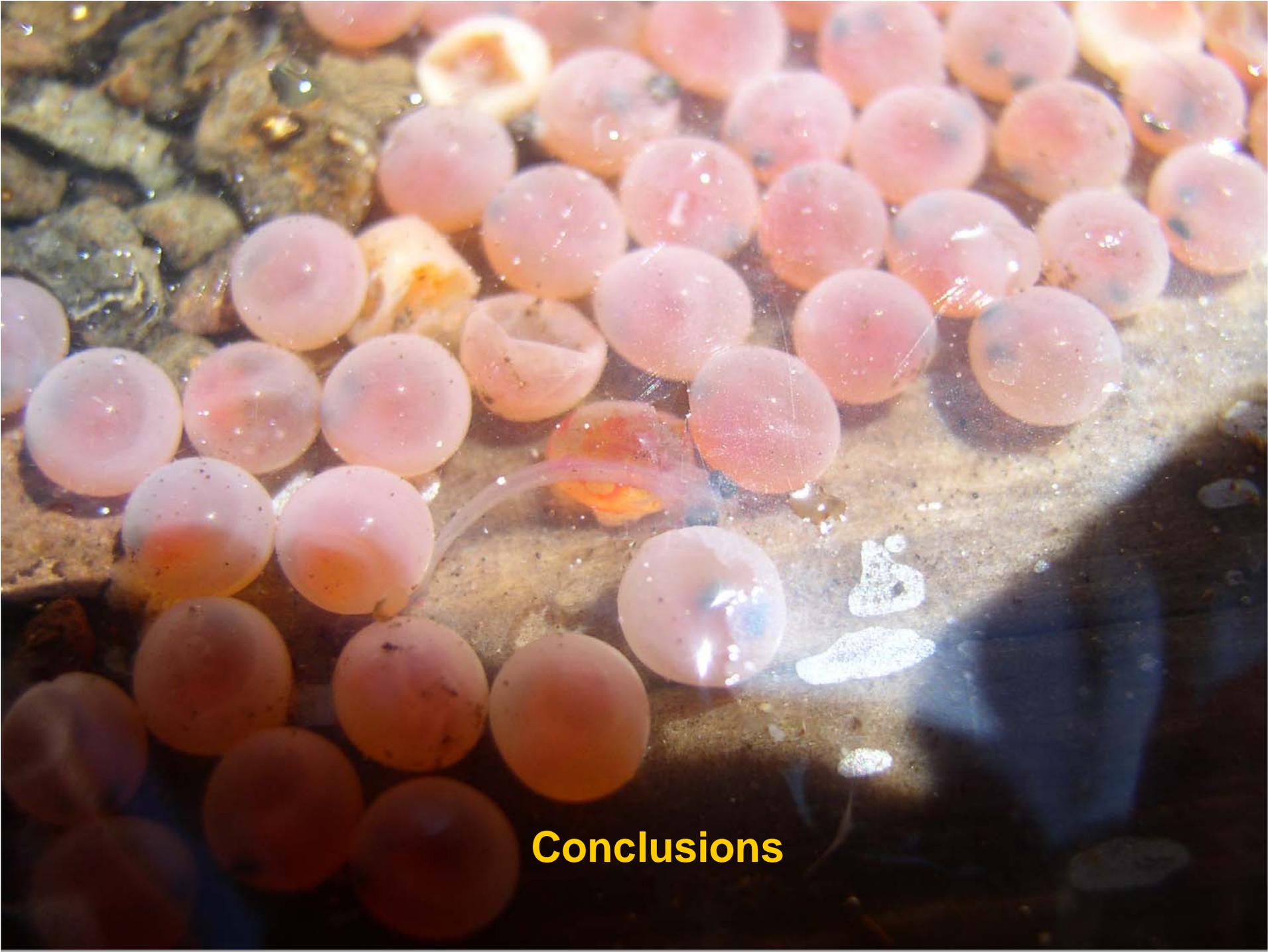


Fry production by Water depth



Lake vs. tributary water temperature





Conclusions



Warmer temperatures and earlier emergence



may represent an advantage for shoal fry over tributary fry in the early growth stages



Limited spawning habitat in the tributaries may drive spawning in the shoals



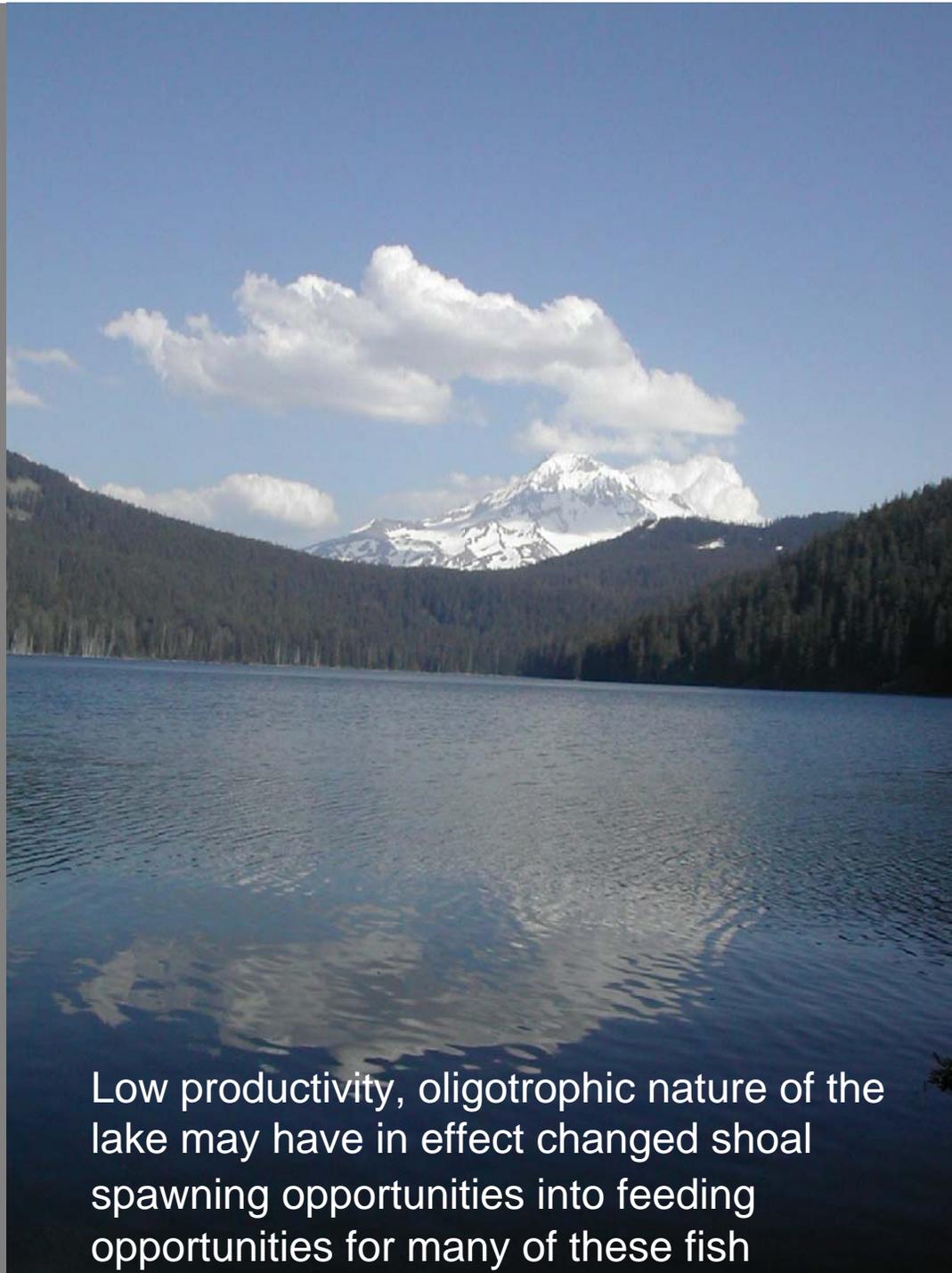
Changes in lake surface elevation which prevent tributary access may force spawners to utilize the shoals



Shoal and tributary spawning may represent two divergent life histories



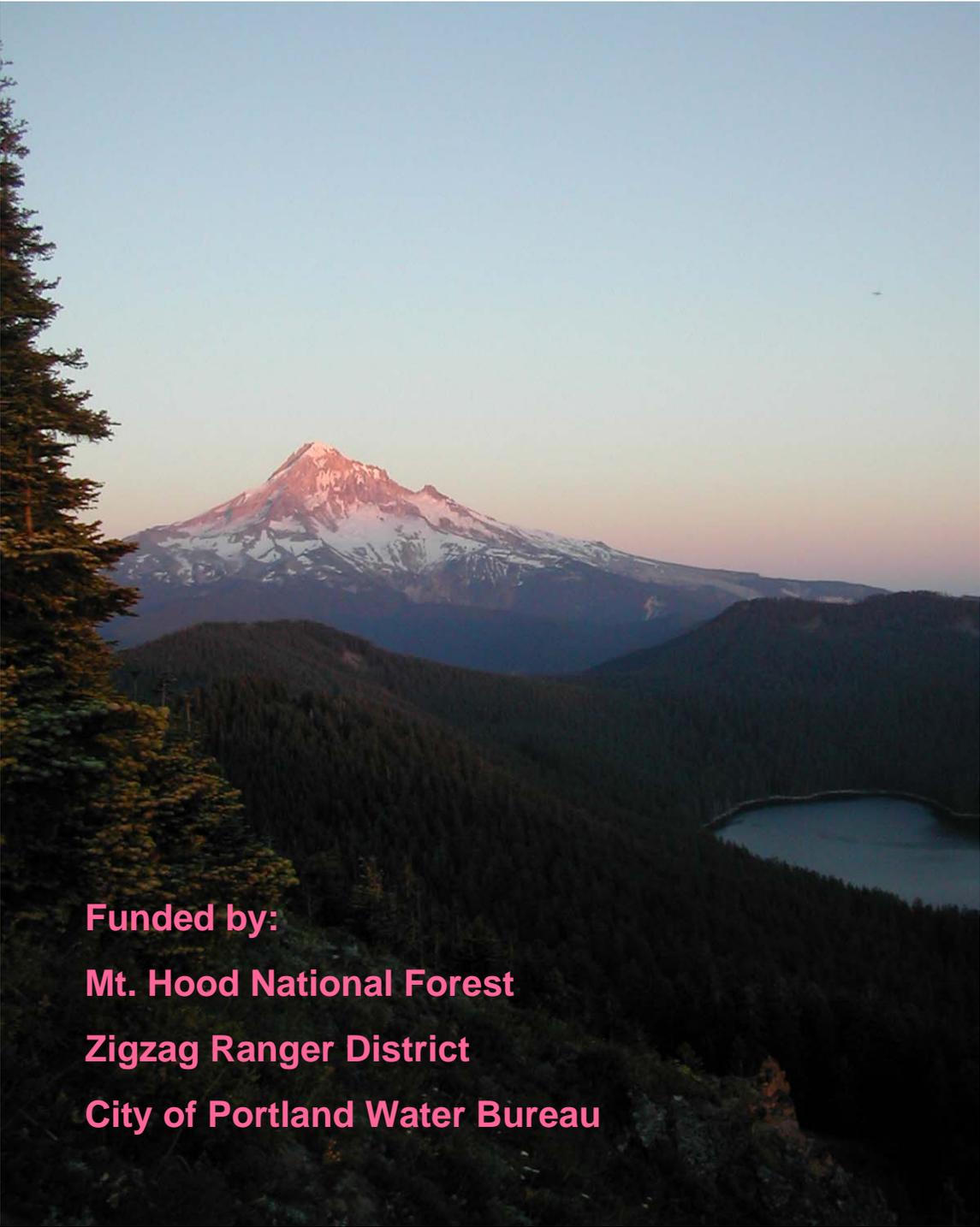
Absence of up- or down -welling, low DO's, or poor substrates may be limiting fry production in shoal areas



Low productivity, oligotrophic nature of the lake may have in effect changed shoal spawning opportunities into feeding opportunities for many of these fish



Despite the high predation of eggs and less than optimal substrates, the presence of emergent fry in the shoal areas suggests that spawning in the shoals is a successful life history adaptation



Funded by:
Mt. Hood National Forest
Zigzag Ranger District
City of Portland Water Bureau

Population Estimates from hydroacoustics

