# **Title: Idaho Steelhead Stock Status, 2010.**

**Abstract**

Snake River adult steelhead status fluctuates with migration corridor habitat and flow conditions. Idaho historically produced about 55% of the total summer steelhead in the Columbia River basin. An average of 70,000 wild adult summer steelhead entered the Snake River during the 1960s, based on Ice Harbor Dam counts. During this period, nearly all steelhead were wild and were the most numerous anadromous fish returning to the Snake River Basin. The documented thirty‑year decline of Snake River steelhead led to their listing as threatened in October 1997, pursuant to the federal Endangered Species Act. Development of the Federal Columbia River Power System (FCRPS), particularly the four dams and reservoirs on the Lower Snake River, is considered to be the primary factor in the decline of Snake River steelhead. About 60% of the historical steelhead habitat in Idaho is still available, primarily in the Salmon and Clearwater river drainages. About 30% of Idaho's existing steelhead habitat is included within designated wilderness or wild and scenic river corridors. There is a mix ofnatural and hatchery steelhead production strategies in Idaho, ranging from wild refugia to large‑scale hatchery programs to provide harvest opportunities. Areas managed for wild steelhead include the Lochsa and the Selway river drainages of the Clearwater River, the Middle Fork and South Fork drainages of the Salmon River, Rapid River, tributaries of the Salmon River downstream of the MF Salmon River, and tributaries of the Clearwater River downstream of the SF Clearwater. Since the 1960s, the composition of the steelhead run entering Idaho has changed. The proportion of hatchery origin steelhead has steadily increased due to declining returns of natural fish and development of hatcheries. During 1960’s, the Snake River steelhead run was essentially 100% wild. Since 2000 the run has averaged nearly 14% (26,265 fish) naturally produced steelhead. The mitigation goal for hatchery origin fish, to provide for angler harvest, is 80,000 steelhead at Lower Granite Dam. This goal has been exceeded every year since 2000 and has averaged 146,300 adipose clipped steelhead. The 2009-2010 run is the largest counted at Lower Granite Dam. During the fall migration period a total of 312,430 steelhead (42,100 wild) passed Lower Granite Dam. More than 57,000 hatchery origin steelhead were harvested in Idaho during the fall 2009. Only hatchery steelhead with a clipped adipose fin may be kept in Idaho.

# Presentation given by: Alan Byrne, Idaho Department of Fish and Game

**TITLE**: **Steelhead Genetic Diversity at Multiple Spatial Scales in the Snake River, Idaho**

**Abstract**

We investigated the genetic diversity of steelhead (*Oncorhynchus mykiss*) in 74 wild populations and five hatchery stocks in Idaho’s Snake River Basin at the drainage, watershed, and population spatial scales using 11 microsatellite loci. We found that genetic diversity exists at multiple spatial scales. AMOVA showed genetic diversity was greater among watersheds within drainages (3.66%) than among drainages (1.97%). Over 94% of the genetic diversity found in the Clearwater, Salmon and Snake drainages was found within individual populations. The Middle Fork Salmon, South Fork Salmon, Lochsa and Selway rivers, watersheds managed for wild fish, formed distinct groups in our consensus neighbor joining (NJ) trees. At the watershed scale our analyses support differentiation of all hatchery and wild stocks. However, this was not the case for analyses at the population scale, where some populations (both wild and hatchery) were not different from others. The distribution of genetic diversity across the landscape does not appear to be organized by the A-run or B-run designations used in the management of Idaho’s steelhead. The Dworshak hatchery stock was significantly different from all populations in pairwise *FST* comparisons and grouped with other Clearwater drainage populations in our NJ trees. The Oxbow, Sawtooth and Pahsimeroi hatcheries were indistinguishable from each other based on *FST* analysis. This study represents the most comprehensive genetic evaluation of Idaho’s anadromous *O. mykiss* populations to date.

Presentation given by: Alan Byrne, IDFG

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**TITLE**: **Parr and smolt yield, migration timing, and age structure in a wild steelhead population, Fish Creek, Idaho.**

**Abstract**

I estimated the number of migrants and smolts produced per female spawner from brood years (BY) 1996 to 2003. During this period the number of female spawners ranged from 26 to 251 fish. The median number of migrants leaving the stream was 459 fish per female spawner and ranged from 149 to 1,207 per female spawner. The majority of migrants leave Fish Creek in September and October. Most migrants over-winter in the mainstem Lochsa or Clearwater rivers and become smolts the following spring. However, about 5% of the fall migrants become smolts after spending an additional summer rearing in freshwater. Most of the fall migrants were age-1 or age-2 (age-2 and age-3 smolts) with a small percentage (generally less than 5%) that were age-3. The proportion of each age class was not consistent for each BY. For example, age-1 fall migrants ranged from 24% to 66% of the parr yield during the study period. Survival from fall migrant to smolt ranged from 32% to 65%.

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