# NW Fishletter #294, September 22, 2011

**[3] Most 2010 Barged Fish Beat Inrivers, Study Finds –**

**http://www.newsdata.com/fishletter/294/3story.html**

Despite the court-ordered spill regime in place at Northwest federal dams, most PIT-tagged juvenile spring chinook and steelhead in 2009 still made out better if they were barged through the Columbia and Snake hydro system instead of swimming through it, according to a draft study released Aug. 31 by the Fish Passage Center.

New results from 2011 fish returns also suggest barging is not detrimental to juvenile sockeye at all--a concern expressed by an independent science panel that scrutinized the feds' proposed transportation strategy in the 2008 BiOp, which called for shutting all spill at fish-collector dams for two weeks in May to transport as many juvenile fish as possible. But the enhanced-spill strategy put a stop to that, and has resulted in a much lower percentage of fish being barged than before it was implemented in summer 2005.

The FPC's **latest results** from its ongoing Comparative Survival Study (CSS) showed no benefits from transportation for wild Snake River spring chinook, but definite boosts to overall survival of hatchery spring chinook, and to both wild and hatchery steelhead that migrated in 2009.

The smolt-to-adult return rate (SAR) for wild springers was 0.63 percent, according to the FPC analysis, while inriver SARs averaged 0.79 percent.

SARs from the 2008 spring chinook outmigration were much higher in the FPC analysis, as transported fish returned at a 2.55-percent clip and inriver fish at 2.36 percent. In 2007, transport SARs averaged 1.20 percent, and inrivers 0.94 percent.

But the report pointed out that in few years did any SARs reach the 2-percent return rate some policymakers think is needed to keep fish numbers stable.

Still, the 2011 CSS draft report said, aside from 2001, there has been no relative benefit for transported wild springers from the Snake, or for hatchery fish from Dworshak and Catherine Creek.

In 2001--an extremely low-flow year--the CSS report estimated barged spring chinook returned at nine times the rate of inriver migrants, and wild steelhead had an adult-return rate 37 times better than inriver migrants.

But the FPC did find higher survival for transported fish "in some years" for Imnaha hatchery summer chinook, and higher survival "in most years" for transported hatchery spring chinook from Rapid River and summer chinook from McCall hatchery.

For the 2009 outmigration, transported Rapid River springers had a 0.53-percent SAR, and inrivers averaged 0.41 percent.

McCall hatchery summer chinook that were barged returned at a 0.53-percent rate, according to the report, while inriver fish only showed a 0.26-percent SAR.

The latest CSS report also found continuing benefits for PIT-tagged wild and hatchery steelhead. For wild steelhead transported in 2008 (the last year included in the data), the SAR was 3.92 percent, while inriver SARs were 3.49 percent. In 2008, the transport SAR averaged 4.18 percent, while the inriver return rate was only 1.44 percent. Hatchery steelhead transported from the Snake in 2008 showed a 2.92 percent SAR while inrivers showed a 2.55-percent SAR. In 2007, the difference was much

greater--barged hatchery steelies returned at a 1.94-percent rate, while inrivers had only a 1.17-percent return rate.

The CSS draft said "some of the relative transport benefit for steelhead may be due to their poor inriver survival compared to chinook." Their own analyses "suggest" barging is detrimental when inriver juvenile survival was above 55 percent, which does not often happen with wild steelhead.

The CSS draft reported that PIT-tagged sockeye out-migrating in 2009 had a transport SAR of 0.58 percent, and an inriver SAR of 0.61 percent. Critics of barging sockeye have cited their relative fragility and the likelihood of descaling while being routed to barges, but such concerns seem not to be confirmed by the data, so far.

NOAA Fisheries researchers have not announced any adult survival results since last December, when scientist Doug Marsh reported a 36-percent survival benefit for PIT-tagged wild spring chinook barged in 2007. For wild steelhead, the benefits of barging were even more pronounced. The transport SAR for Snake wild steelies was 2.64 percent, and for inrivers it was 0.47 percent--a return rate more than five times better. Bypassed steelhead showed only a 0.28-percent SAR.

Basic differences in methodology between the National Marine Fisheries Service analysis, which uses fish detected at least once and focuses on weekly releases, and CSS, which estimates wild fish numbers and uses annual averages, show up in some results.

The CSS report showed a huge benefit for wild steelhead from barging in 2007 as well, though it pegged barged SARS at slightly less than three times that of inrivers. For wild spring chinook that year, CSS showed a 27-percent benefit from barging, compared to NMFS' 36 percent.

A January 2010 NMFS report said that since 2006, the ratios of SARs between barged and inriver migrants for wild and hatchery chinook and wild steelhead seemed close to patterns observed in earlier years when all bypassed, non-tagged fish were barged, but the transport to migrant ratio for hatchery steelhead may have changed--"the only instances in the 11 years of data of significantly lower returns for transported hatchery steelhead occurred in the early parts of the 2006 and 2007 migration seasons."

The latest CSS results may support that. The report said the trend in recent years of reduced benefits to wild and hatchery steelhead from barging may be due to several factors, including allowing more early migrating fish to pass inriver, increased spill and a larger inriver population.

Even NMFS has suggested that since the court-ordered spill program was established, larger numbers of hatchery steelhead in the rivers may be swamping predators and reducing overall predation rates compared to earlier years, when most steelhead were barged. *-B. R.*

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