

ISAB Report 2006 -1

Biological Effectiveness of 2005 Summer Spill

January 18, 2006

Review Questions

- What studies were conducted during '05 spill giving relevant survival and SAR estimates?
- What is status of data and analyses ?
- Are survival and passage metrics statistically sound ?
- What are the potential effects of 2005 spill on “Reservoir Type” fall Chinook ?
- What additional studies are recommended?



NMFS/USFWS – Joint PIT-tag Studies

- Comparison of SARRS of fall Chinook under alternating transport and spill ops.
- Transport group = wild and surrogate hatchery
- In-river group = wild and surrogate hatchery
- Wait 3-5 yrs. to estimate SARRs for '05
- Trends in 2005 – performance of wild and surrogates from Lyons Ferry similar, production/hatchery fish faster travel rates and higher survival than wild or surrogates

Fish Passage Center PIT tag Analyses

- FPC used data from all PIT tagged wild, surrogate, and hatchery production fish to estimate reach survival from LGR Tailrace to MCN Tailrace
- Trend - Highest reach survival in recent years 1998-2004.
- Trend – Travel rate second fastest in recent years but this was for all groups averaged for each time period. Specific groups would be more meaningful.

USGS and NMFS Radio-Tag Studies

- Passage behavior and survival estimated at 4 lower Snake dams and McNary on Col.
- RSWs also evaluated at LGR and Ice H.
- Passage efficiency high all dams (96-99%)
- Spillway survival fairly high (90-100%)
- Results dam specific and do not provide reach or SARs estimates.

Status of Data/Analyses and Adequacy for Evaluating Spill Effectiveness

- No reports or raw data available for ISAB Review
- All results (memos or presentations) labeled as preliminary

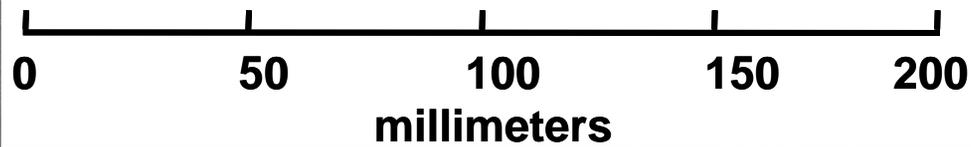
Statistical Soundness of Estimates and Analyses

- The ISAB generally found no significant problems in the computation of survival or passage estimates.
- The ISAB found the FPC's among year comparisons of reach survival to be of limited utility due to major annual variations in hydrosystem operations, and passage timing and behavior of subyearling Chinook.

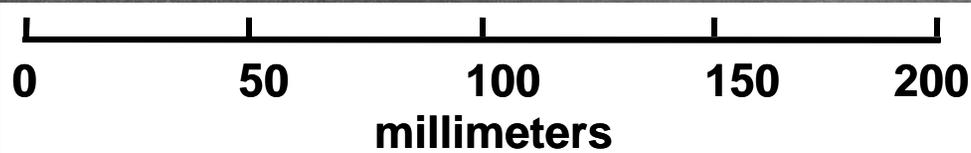
Spill Effects on “Reservoir Type” Fall Chinook Juveniles

- Immediate effects unknown. Need to wait to estimate SARs.
- Slower migration rates, feeding, and ocean entry at larger size may reduce predator vulnerability = higher relative survival.
- If summer spill or transportation speeds migration rate or alters rearing locations, this life history type may be threatened.

Ocean-type



Reservoir-type



ISAB Recommendations for Additional Studies for Spill Evaluation

- Replicate studies – coordinated dam/spill operations for multiple years.
- Increase tagging and monitoring of juveniles and adults.
- Evaluate spill effects on up-river migrating adult salmonids and other resident species
- Conduct studies on over-wintering fall Chinook – survival and life history details.