

This list represents the research necessary to evaluate the effects of lake drawdown on the condition of Jackson Lake. Results of this research will aid the park in making recommendations related to Jackson Lake Dam operations.

1. Data Mining for Jackson Lake – Identify: major literature; and major data sets and evaluate for usefulness
2. Acquire high resolution bathymetry for JL (1 m)
3. Map JL substrate (bottom surface)
4. Determine the temperature, DO conductivity , pH, secchi, N profiles for JL (good temporal/spatial coverage, entire lake). How do changes in Lake levels affect these?
5. Collect invert/zooplankton/macrophyte distribution/density data at different water levels, stratified by habitat type
6. Develop model to predict loss/gain of primary/secondary productivity based on incremental levels of drawdown. Model should include recovery scenarios for fluctuating lake levels. Link to fish population models.
7. Determine absolute abundance of fish (all) using hydro-acoustic monitoring
8. Model fish relative abundance per habitat type
9. What are the effects of lake drawdown on adjacent wetlands (e.g. Heron Pond, Christian Pond, Willow flats, and others) – specifically water levels?
10. Census of amphibian breeding sites in adjacent wetlands
11. Census of aquatic mammals (beavers/otters). Develop suitability/habitat model in response to lake drawdown
12. Census of herons, osprey, bald eagles (fishing birds); Foraging, nesting, recruitment, vital rates as they relate to lake levels
13. Evaluate protection measures (develop non-motorized zone?) to protect submerged cultural resources and sensitive wildlife habitats on JL

This list represents the research necessary to evaluate the effects of flow regulation on the condition of the Snake River. Results of this research will aid the park in making recommendations related to Jackson Lake Dam operations.

Snake River priorities to determine the condition of Snake River below the dam as compared to a natural river (from literature, above dam, Pacific Creek):

1. Data mining
2. Review historic changes (hydrology, geomorphology). What is association with changes in braiding? (NHAP, NAAP)
3. Determine levels of bank inundation
4. At what point is sediment mobilized?
5. What is the productivity of the river (zooplankton, inverts, nutrients) at different flow conditions
6. Vegetative analysis of aerial photos. What are the changes over time (cottonwoods and willows, exotics), and, can they be associated with changes in flow
7. Develop a model to predict vegetation changes over time as a result of water fluctuations and grazing
8. Census/distribution of beavers/otters. Develop suitability models
9. How do controlled flows affect fish movements – telemetry; summer movement vs flows
10. Do changes in terrestrial vegetation influence the neotropical/passerine community?
11. Are piscivorous birds impacted by the regulated water flows?