



SUSITNA-WATANA HYDROELECTRIC PROJECT

Fish Distribution and Abundance of the Middle and Lower Susitna River

Winter Studies

Technical Workgroup Meeting 3rd Quarter 2013

September 23, 2013

RSP 9.6 FDA ML Winter Studies

Pilot Study Conducted Winter 2012/13

- Objectives focused on safety, logistics, and testing effectiveness of fish capture methods
- Sampled through ice and in open water leads with the following gear types:
 - Baited minnow traps, seine, trotline/setline, angling, electrofishing, underwater video, and sonar imaging.
- Tested the detectability of radio tags and PIT tags through various ice thicknesses and conditions.



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Winter 2013/14 Recommendations

Study objectives:

1. Document the winter distribution of juvenile anadromous and resident fish in MR FAs
 - Biotelemetry and monthly fish sampling
2. Describe seasonal movement, timing, and habitat use by juvenile salmonids at selected FAs in winter
 - Biotelemetry and monthly fish sampling
3. Determine diurnal activity of juvenile salmonids at selected FAs in winter
 - Fish distribution sampling using day/night stratified underwater videography and backpack electrofishing



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Winter 2013/14 Recommendations:

- Fish Distribution and Abundance:
 - November sampling trip pre-winter condition, 6-8 days
 - Four monthly trips Jan-April: 15 days
 - Fish sampling based out of Talkeenta, Slough 8A, and Gold Creek
 - Travel by snow machine/train
 - Interdisciplinary collaboration with fish and aquatics, instream flow, and groundwater studies.
- Fish Movements:
 - Continue monthly aerial tracking of radiotagged resident fish
 - Maintain and download a subset of stationary receivers based on 1980s and 2013 studies
 - Maintain and download PIT tag antennas at Montana Creek, Whiskers Slough, and Slough 8A
 - Monitor system voltage and replace batteries as needed



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Winter 2013/14 Recommendations:

- Mid-November pre-winter travel conditions
 - 6-8 days
 - Helicopter supported
 - Potential FAs 104, 113, 115, 138, 141 & 4th of July Creek
 - Sample 3 upland slough, side slough, slough mouth, tributary, tributary mouth, and side channel sites.
 - 60-meter-long sampling units
 - Employ 3 methods at each site:
 1. Set 6-12 minnow traps overnight at each location.
 2. Daytime observation using underwater video
 3. Use one additional technique based on site conditions: e-fishing, seine, Fyke net, hoop trap, trotline, setline, angle.



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Winter 2013/14 Recommendations:

- Monthly Sampling Jan-April
 - Potential sampling locations Lower Montana Creek, FAs 104, 113, 115, 128, 138, 141, 4th of July Creek, and Gold Creek
 - Sample 5 sites in upland slough, side slough, and tributary habitats and 3 slough mouth, tributary mouth, side channel, and mainstem sites depending on ice conditions.
 - 60-meter-long sampling units
 - Employ 3 methods at each site:
 1. Set 6-12 minnow traps overnight when site conditions allow.
 2. Day & nighttime observations using underwater video and electrofishing to characterize fish species presence and behavior at a minimum of one of each habitat type
 3. Selection from additional techniques based on site conditions: e-fishing, Fyke net, hoop trap, trotline, setline, angle.

