



North American Journal of Fisheries Management >

Volume 21, 2001 - [Issue 2](#)

178 | 68

Views | CrossRef citations to date | 6

Altmetric

Article

# Sources and Magnitude of Sampling Error in Redd Counts for Bull Trout

Jason Dunham, Bruce Rieman & Kevin Davis

Pages 343-352 | Received 07 Jan 2000, Accepted 10 Sep 2000, Published online: 08 Jan 2011

🗨️ Cite this article   🔗 [https://doi.org/10.1577/1548-8675\(2001\)021<0343:SAMOSE>2.0.CO;2](https://doi.org/10.1577/1548-8675(2001)021<0343:SAMOSE>2.0.CO;2)

Sample our  
Economics, Finance,  
Business & Industry Journals  
>> [Sign in here](#) to start your access  
to the latest two volumes for 14 days

📄 Full Article

📊 Figures & data

📖 References

🗨️ Citations

📊 Metrics

📄 Reprints & Permissions

Read this article

🔗 Share

## Abstract

Monitoring of salmonid populations often involves annual redd counts, but the validity of this method has seldom been evaluated. We conducted redd counts of bull trout *Salvelinus confluentus* in two streams in northern Idaho to address four issues: (1) relationships between adult escapements and redd counts; (2) interobserver variability in redd counts; (3) sources of interobserver variability; and (4) temporal and spatial variation in spawning activity. We found that estimated adult escapements and redd counts were strongly correlated on a logarithmic scale, but both sources of data probably contained large estimation or observation errors. In particular, redd counts varied significantly among observers in replicate counting trials. Observer counts ranged between 28% and 254% of the best estimates of actual redd numbers. Counting errors included both omissions and false identifications. Correlations between counting errors and redd and habitat characteristics were highly variable and provided limited insights into potential causes of sampling error. Finally, we found significant spatial and

temporal variability in spawning activity, which should be considered in establishing index areas for redd counts and the timing of counts. Our results suggest substantial improvements are needed to make redd counts and unbiased estimates of adult escapement more useful for population monitoring.

---

---

## Related research

People also read

Recommended articles

Cited by  
68

## Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

## Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

## Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

## Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

## Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2025 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)

[Accessibility](#)

 Taylor and Francis Group

Registered in England & Wales No. 01072954  
5 Howick Place | London | SW1P 1WG