

StreamCatTools: An R package for working with StreamCat and LakeCat watershed data in R

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Software

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Summary

StreamCatTools provides functions for easily working with, visualizing and analyzing the StreamCat(Hill, Weber, Leibowitz, Olsen, & Thornbrugh, 2016) and LakeCat(Hill, Weber, Debbout, Leibowitz, & Olsen, 2018) data and API within **R**. StreamCat and LakeCat provide hundreds of landscape metrics for both the local catchment and full watershed for every stream reach and lake depicted in the medium resolution National Hydrography Dataset Plus Version 2.1 (NHDPlus21)(McKay et al., 2012)

Statement of Need

StreamCat is awesome!

Package Overview

How it works

Installing StreamCatTools

```
# library(remotes)
# install_github("USEPA/StreamCatTools", build_vignettes=FALSE)
```

StreamCatTools is loaded into an **R** session:

```
library(StreamCatTools)
```

Examples

Discussion

Let's talk StreamCat!

Acknowledgements

Examples of using StreamCat and LakeCat make extensive use of **nhdplusTools**(Blodgett & Johnson, 2023) and the functions for accessing the API are facilitated through use of **httr2**. Figures were created using **ggplot2** (Wickham, 2016).

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References

- Blodgett, D., & Johnson, M. (2023). *nhdplusTools: Tools for accessing and working with the NHDPlus*. Reston, VA: U.S. Geological Survey; U.S. Geological Survey. Retrieved from <https://doi.org/10.5066/P97AS8JD>
- Hill, R. A., Weber, M. H., Debbout, R. M., Leibowitz, S. G., & Olsen, A. R. (2018). The lake-catchment (LakeCat) dataset: Characterizing landscape features for lake basins within the conterminous USA. *Freshwater Science*, 37(2), 208–221. doi:[10.1086/697966](https://doi.org/10.1086/697966)
- Hill, R. A., Weber, M. H., Leibowitz, S. G., Olsen, A. R., & Thornbrugh, D. J. (2016). The stream-catchment (StreamCat) dataset: A database of watershed metrics for the conterminous united states. *JAWRA Journal of the American Water Resources Association*, 52(1), 120–128. doi:<https://doi.org/10.1111/1752-1688.12372>
- McKay, L., Bondelid, T., Dewald, T., Johnston, J., Moore, R., & Reah, A. (2012). *NHDPlus version 2: User guide*. Retrieved from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php
- Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. Springer-Verlag New York. doi:[10.1007/978-0-387-98141-3](https://doi.org/10.1007/978-0-387-98141-3)