# Article information:

Full article: Application of unmanned aircraft system (UAS) for monitoring bank erosion along river corridors
<https://www.tandfonline.com/doi/full/10.1080/19475705.2019.1571533>

# Article summary:

1. Streambank erosion is important to quantify for comprehensive catchment water quality studies and understanding the geomorphic condition of river systems.

2. Unmanned aircraft system (UAS) technology, also known as drones, can be used for UAS-based photogrammetric surveying to monitor long lengths of river corridors and quantify streambank erosion rates.

3. UAS-based photogrammetry has limitations and recommendations for its application in a watershed management setting should be considered.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article "Application of unmanned aircraft system (UAS) for monitoring bank erosion along river corridors" provides an overview of the use of unmanned aerial vehicles (UAVs) or drones for monitoring streambank erosion and retreat. The article highlights the importance of measuring bank erosion and channel change in understanding the geomorphic condition of river systems, informing assessment of risk to infrastructure and stream habitat posed by fluvial erosion, and guiding watershed and surface water management strategies.

The article presents various methods available for measuring and monitoring streambank erosion and retreat, including traditional methods such as cross-sectional surveys and bank pins, as well as more advanced techniques such as lidar from both airborne and terrestrial platforms. The article also discusses the creation of digital elevation models (DEMs) from sequential surveys using photogrammetry, airborne lidar, and terrestrial laser scanning.

The article then focuses on advancements in UAS technology that have given rise to a flexible and affordable system for collecting topographic data. UAS-based surveying can overcome some of the existing data collection shortcomings of ground surveys and manned aircraft systems. The article highlights recent advances in image processing software driven by innovations in computer vision and structure from motion (SfM) algorithms that have rapidly advanced the resolution of UAS topographic data.

The article provides examples of UAS-based photogrammetric surveying applications in recent years, including mapping bathymetry, channel topography, production of very high-resolution DEMs, quantifying bank erosion, and monitoring volumetric change in fluvial settings due to flooding. However, the authors note that to date, UAS investigations of river channels have utilized surveys over a single river reach typically with multi-copter UAS. In addition, applications of UAS for geomorphic change detection along rivers have been limited to areas largely clear of obstructing vegetation.

Overall, the article provides a comprehensive overview of the potential benefits and limitations associated with using UAVs for monitoring streambank erosion and retreat. However, the article does not provide a balanced discussion of potential risks associated with UAS-based surveying, such as privacy concerns or safety issues. Additionally, the article does not explore potential counterarguments to the use of UAVs for monitoring streambank erosion and retreat, such as concerns about accuracy or reliability of data collected using this method.

# Topics for further research:

* Risks associated with using UAVs for surveying
* Privacy concerns with UAS-based monitoring
* Safety issues with unmanned aerial vehicles
* Accuracy of data collected using UAS for monitoring streambank erosion
* Reliability of UAS-based surveying for geomorphic change detection
* Counterarguments to using UAVs for monitoring river corridors

# Report location:

<https://www.fullpicture.app/item/e11a7c1bfd5781005646ad34d9fc1e43>