

Can Artificial Intelligence Be the Solution to The Supreme Court's Wetland Determination Problem?

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In May of 2023 the Supreme Court decided *Sackett v. EPA*, which overturned the federal government's definition for waters of the United States. In the United States "the Environmental Protection Agency regulates wetlands and streams through Section 404 of the Clean Water Act."¹ The Environmental Protection Agency and the Army Corps of Engineers jointly administer the 404 program, where the Army Corps often, but is not required to, makes wetland determinations.² In the *Sackett* majority opinion, Justice Alito expressed frustration over the current process of determining if a wetland is in fact covered under the definition of water of the United States, going so far as to say "this unchecked definition of 'the waters of the United States' means that a staggering array of landowners are at risk of criminal prosecution or onerous civil penalties."³ The intensive traditional process landowners must undergo to determine if their property contains a water of the United States "puts many property owners in a precarious position because it is 'often difficult to determine whether a particular piece of property contains waters of the United States.'"⁴ If a water of the United States is found on someone's property, it could mean great limits are placed on future property development, or could go so far as to create entire prohibitions on development.

Alito further explained how the traditional process of wetland determinations can be arbitrary and lead to unknown results.⁵ While the court did instruct the EPA and Army Corps of Engineers to adopt a new definition of a water of the United States, it is unlikely the often arbitrary and intensive process will go away.⁶ However, landowners may have a new tool at their disposal soon by using Artificial Intelligence (AI) as a solution to this intensive and often arbitrary process. AI could allow property owners to make these determinations for themselves without relying on expensive experts or risking a determination from the Army Corps of Engineers.

The Chesapeake Bay region contains thousands of ever-changing wetlands.⁷ These wetlands are often difficult to track using conventional methods, leading to outdated wetland maps and challenges for regulators, conservationists, and landowners.⁸ However, "a team at the nonprofit Chesapeake Conservancy has developed an 'AI deep learning' model that can map wetlands with 94% accuracy."⁹ To train the AI, the developers used data from state wetlands

¹ Becca Madsen, *Identifying Wetlands with Deep Learning How an EPRI | Chesapeake Conservancy collaboration is refining desktop wetland identification for improved planning*, August 2, 2021.

<https://storymaps.arcgis.com/stories/4f98297b48a94efbbbe0199681539980>

² *Sackett v. EPA*, 143 S. Ct. 1322, 1335 (2023).

³ *Id.*

⁴ *Id.* citing *Hawkes Co.*, 578 U. S., at 594, 136 S. Ct. 1807, 195 L. Ed. 2d 77.

⁵ *Id.*

⁶ *Id.*

⁷ Whiteny Pipkin, *Can AI track wetlands better than people can? Chesapeake Conservancy is teaching computers to produce more accurate maps*, Bay Journal, Feb. 23, 2023.

https://www.bayjournal.com/news/growth_conservation/can-ai-track-wetlands-better-than-people/article_7aa5dcce-b39b-11ed-8a00-8b6c15ea756d.html#:~:text=A%20team%20at%20the%20nonprofit,Science%20of%20the%20Total%20Environment.

⁸ *Id.*

⁹ *Id.*

data, the National Wetlands Inventory (NWI), the USDA National Agriculture Imagery Program (NAIP), as well as satellite imagery and LIDAR.¹⁰ The use of these AI tools is promising because it allows for the accurate determination of a wetland while sitting at a desk, instead of the traditional process that involves expensive in-person expert visits.¹¹ Similar tools have been developed by the Chesapeake Conservancy that analyzes ground cover with an 18% greater accuracy than traditional methods.¹² While this landcover model is for a more simple issue than wetlands, it is a promising start. Additionally, the wetland model was able to “identify wetlands with 10% more accuracy than the outdated data sets used to train it.”¹³ The conservancy predicts that with further development of their model, it can be used to influence both local and national policy.¹⁴ There are, however, several hurdles AI will need to overcome before it is ready to fully solve the problem of how to efficiently determine the existence of a wetland.

While the Army Corps of Engineers isn’t unfamiliar with making so called desktop determinations with “the U.S. Army Corps of Engineers relying on desktop wetland data for roughly two-thirds of the 1,011 jurisdictional determinations reviewed between June and mid-September 2020”, these determinations can be greatly improved by AI.¹⁵ The existing wetland data is greatly flawed and outdated¹⁶ since the National Wetlands Inventory data “has what are called errors of omission and commission. In other words, it doesn’t map wetlands that are there, and it maps wetlands that are no longer there.”¹⁷ This demonstrates one of the greatest challenges the further implementation of AI has to overcome because AI relies on the data it is fed to learn what it is tasked with.¹⁸ In conjunction with historically bad data, the EPA just released its new definitions of waters of the United States, which could call into question the validity of all of the currently available data developers could use to make new AI tools to determine what a water of the United States is.¹⁹ After all, since the very definition of water of the United States is in such flux, AI cannot be expected to accurately produce results.

Ultimately, the legal definition for water of the United States needs to be settled for there to be enough consistency to allow for the creation of AI tools that could greatly assist both regulators and landowners. If history is any indicator, the new language defining a water of the United States will change, as it has changed many times in the past.²⁰ AI has the potential to be a great tool, allowing landowners to determine the existence of a wetland on their property with a simple desktop application. However, better more accurate data needs to exist in order to properly train these models, as well as the need for a settled definition of what a water of the United States even is.

¹⁰ Chesapeake Conservancy, *Artificial Intelligence Deep Learning Model for Mapping Wetlands Yields 94% Accuracy*, Jan. 10, 2023. <https://www.chesapeakeconservancy.org/2023/01/10/artificial-intelligence-deep-learning-model-for-mapping-wetlands-yields-94-accuracy/>

¹¹ *Id.*

¹² Madsen, *Supra* note 1.

¹³ Pipkin, *Supra* note 7.

¹⁴ *Id.*

¹⁵ Madsen, *supra* note 1.

¹⁶ *Id.*

¹⁷ U.S. Env’t Prot. Agency, CORRECTING THE RECORD: MEDIA ERRONEOUSLY CLAIMS EPA AND ARMY JEOPARDIZE WETLANDS & STREAM PROTECTION (2020).

¹⁸ Thomas Redman, *If Your Data Is Bad, Your Machine Learning Tools Are Useless*, Harv. Bus. Rev. (Apr. 2, 2018).

¹⁹ See 88 FR 61964.

²⁰ *Supra* note 2.