

Zhaoying (Angie) Wei

Geospatial Analyst

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Professional Summary

I'm a GIS Analyst with 10 years of experience working in Environmental Science. When I'm working with Chesapeake Bay Program(CBP), I have been providing supports to the CBP partners by applying my GIS expertise to develop and communicate information used in decision making for the Chesapeake Bay environmental restoration efforts. Specific areas include but not limited to

- Planning and performing geospatial analysis, visualization using Esri ArcGIS Suite
- Developing solutions to problems involving the integration of geographical data with tidal water quality criteria assessment
- Target habitat restoration for species of concern
- 3D visualization of modeling and interpolator data

Technical Skills

- **Software:** ArcGIS Pro, ArcGIS Online, ArcGIS Enterprise, QGIS, Erdas Imagine, Adobe Illustrator, Microsoft Office Suite
- **Programming Languages:** Python, C++, R
- **Web:** HTML5, JavaScript, JSON
- **Databases:** ArcGIS Geodatabase, Microsoft Access, Microsoft SQL Server 2008, Oracle relational database
- **Metadata:** FGDC, ISO, OGC standards

Education

The University of Georgia, Department of Geography, Athens, GA, 2011 - 2013

Master of Science in GIS

- Concentration: Spatial Modeling, Accessibility, Network Analysis, Object-based programming, Public health
- Master's thesis: *Study of accessibility to health facilities in metro Atlanta using Categorical Multi-step Floating Catchment Area Method*, designed the advanced GIS network analysis model to calibrate and mapped the state-wide accessibility to health facilities using python scripts to automate the procedure.

Wuhan University, Wuhan, Hubei, China, 2007 - 2011

Bachelor of Science in Cartography and GIS

Employment

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| 2018 - present | Geospatial Analyst, UMCES EPA Chesapeake Bay Program Office. Annapolis, MD |
| 2015 - 2018 | Post-master researcher, Oak Ridge National Lab Distributed Active Archive Center for NASA. Oak Ridge, TN |
| 2013 - 2015 | GIS Analyst, Geonamic Systems Inc. Duluth, GA & Houston, TX |
| 2011 - 2013 | Teaching Assistant in Intro GIS and Remote Sensing, University of Georgia Department of Geography. Athens, GA |

Professional Experience

- Collaborated with Modeling Team for Tidal Bay Data Visualization, and develop the 3D visualization of Phase 7 Estuarine modeling
- Provided GIS analysis support on development of next-generation 4D interpolator
- Performed the shoreline condition computation to highlight current hardening status of shorelines in Maryland and Virginia in support of Fish Habitat Action Team and Forage Action Team
- Conducted tidal geospatial analysis activities and collaborated with tidal water quality analysts on geospatial analysis and mapping needs. e.g. Tidal stations distance computation based on modified Least-Cost Path algorithm
- Performed complex analyses to assist in water quality criteria assessment, target habitat restoration for species of concern and nutrient reduction. e.g. Dissolved Oxygen criteria attainment sensitivity analysis to determine the criteria threshold
- Applied geospatial web development and programming using ArcGIS, JavaScript and open source technologies to deliver high quality GIS solutions in support of CBP partnership initiatives. e.g 3D web-based visualization of water quality parameters and Habitat Suitability conditions using Bay Interpolator outputs.
- Provided expert Geospatial cartographic support to the Chesapeake Bay Program partners to address and analyze environmental management issues and concerns. e.g. Habitat GIT funded project ‘Targeted Local Outreach for Green Infrastructure in Vulnerable Areas’ to identify risk and vulnerability of different areas.
- Aided in the development of Bay Program environmental indicators related to the geographic presentation of the information in the Chesapeake Progress website
- Coordinated development, management, publication of maps, data, web services, applications for web-based geospatial data portals, such as Chesapeake Bay Open Data Portal and Chesapeake Data, to communicate Chesapeake Bay restoration and conservation issues
- Coordinated and produced technical documentation, reports, data dictionaries, and metadata explaining analysis methods used to develop data and conduct geospatial; analysis, and coordinate with EPA to make CBP geospatial metadata accessible through the EPA Geodata Gateway
- Served as primary Geographic Information Science Team Liaison to the CBP Status and Trends Workgroup, Bay Oxygen Research Group and Integrated Trends Analysis Team
- Coordinated staffers to develop static and interactive maps to support projects as described in the Management Strategies

Featured Works

- Chesapeake Bay Segment Explorer <https://gis.chesapeakebay.net/viz/segexplorer/>
- 3D Bay
<https://chesbay.maps.arcgis.com/apps/MapSeries/index.html?appid=80a4cf596ee641218a62721ed4f38544>
- Chesapeake Bay Open Data Portal <https://data-chesbay.opendata.arcgis.com/>
- Status of Hardening Shoreline in MD and VA
<https://chesapeake-bay-program-hub-template-chesbay.hub.arcgis.com/datasets/percent-hardened-shoreline-in-maryland/about>
<https://chesapeake-bay-program-hub-template-chesbay.hub.arcgis.com/datasets/percent-hardened-shoreline-in-virginia-1/about>
- Chesapeake Bay Priority Agricultural Watershed

<https://chesapeake-bay-program-hub-template-chesbay.hub.arcgis.com/datasets/chesapeake-bay-program-priority-agricultural-watershed-analysis-watershed-wide-huc12-rankings-2021/about>

<https://chesapeake-bay-program-hub-template-chesbay.hub.arcgis.com/datasets/chesapeake-bay-program-priority-agricultural-watershed-analysis-state-specific-huc12-rankings-2021/about>

- Indicator maps <https://www.chesapeakeprogress.com/>
- Chesapeake Bay Mean Surface Salinity
<https://www.chesapeakebay.net/what/maps/chesapeake-bay-mean-surface-salinity-1985-2018>
- 118th Congressional Districts in the Chesapeake Bay Watershed
<https://www.chesapeakebay.net/what/maps/congressional-districts-in-the-chesapeake-bay-watershed-118th-congress>
- Chemical Contaminants 2018 <https://www.chesapeakebay.net/what/maps/chemical-contaminants-2018>
- Chemical Contaminants 2020 <https://www.chesapeakebay.net/what/maps/chemical-contaminants-2020>
- Targeted Outreach for Green Infrastructure in Vulnerable Areas in PA, MD, VA
<https://chesbay.maps.arcgis.com/apps/MapSeries/index.html?appid=1d5f8833b7cb4dc799388032d1dcc664>
<https://chesbay.maps.arcgis.com/apps/MapSeries/index.html?appid=4f64f478384c4380a3c48c4735458d23>
<https://chesbay.maps.arcgis.com/apps/MapSeries/index.html?appid=28d3bb9ec0e942bea8faece7e41e5764>
- Tributary Summaries <https://cast.chesapeakebay.net/Home/TMDLTracking#tributaryRptsSection>

Publications and Presentations

- Wei, Z.**, Wolf, J. 2023. "Chesapeake Bay Segment Explorer," presentation at **Chesapeake Bay Program SRS Biennial Meeting**, Charlottesville, VA, May 11-12, 2023
- Wolf, J., Ahmed, L., Claggett, P., Fitch, A., Irani, F., McDonald, S., Strong, D., Thompson, R., and **Wei, Z.**, 2023. Geospatial standard operating procedures of the Chesapeake Bay Program: U.S. Geological Survey Open-File Report 2023–1007, 22 p., <https://doi.org/10.3133/ofr20231007>.
- Keisman, J., R. R. Murphy, O. H. Devereux, J. Harcum, R. Karrh, M. Lane, E. Perry, J. Webber, **Z. Wei**, Q. Zhang, and M. Petenbrink, 2020. "Potomac Tributary Report: A summary of trends in tidal water quality and associated factors, 1985-2018," Chesapeake Bay Program., Annapolis, MD. <https://pubs.er.usgs.gov/publication/70216971>
- Wei, Z.**, J. Wolf, E. Trentacoste, Q. Zhang, R. Tian, and P. Tango. 2019. "Web-based Spatio-temporal Visualization of Water Quality and Habitat Status and Change in Chesapeake Bay," presentation at **American Geophysical Union (AGU) Fall Meeting**, San Francisco, CA, December 9-13, 2019.
- Wei, Z.**, J. Wolf, E. Trentacoste, Q. Zhang, R. Tian, and P. Tango. 2019. "Web-based 4-Dimensional Visualization of Water Quality and Habitat Status and Change in Chesapeake Bay," presentation at **Coastal & Estuarine Research Federation (CERF) Biennial Conference**, Mobile, AL, November 3-7, 2019.
- Wei, Z.**, J. Wolf, E. Trentacoste, Q. Zhang, R. Tian, and P. Tango. 2019. "Web-based 4D Visualization of Water Quality and Habitat Status in Chesapeake Bay," presentation at **USGS Chesapeake Bay Workshop**, Shepherdstown, WV, June 25-27, 2019.
- Smith, Brennan T., Samu, Nicole, Curd, Shelaine L., Wei, Yaxing, and **Wei, Zhaoying**. 2019. HydroSource Data Dictionary. United States: N. p., 2019. <https://doi.org/10.2172/1619046>
- Wei, Z.**, J. Wolf, E. Trentacoste, R. Tian. 2018. "Smart Mapping: Automated 4-Dimensional Visualization of Water Quality in Chesapeake Bay," presentation at **American Geophysical Union (AGU) Fall Meeting**, Washington, D.C., December 10-14, 2018
- Wei, Yaxing; **Wei, Zhaoying**; and SanthanaVannan, Suresh (2017) "Facilitate Visualization and Distribution of NASA's Environmental Science Data through Open Standards and Open Source Software for Geospatial," Free and

Open Source Software for Geospatial (FOSS4G) Conference Proceedings: Vol. 17, Article 8.,

<https://doi.org/10.7275/R5Q23XDF>

- SK Santhana Vannan, A. Boyer, D. Deb, T. Beaty, Y. Wei, **Z. Wei**. 2017. “Data rescue of NASA First ISLSCP (International Satellite Land Surface Climatology Project) Field Experiment (FIFE) aerial observations,” presentation at **American Geophysical Union (AGU) Fall Meeting**, New Orleans, LA, December 11-15, 2017
- Z. Wei**. 2017. “ORNL DAAC Geospatial Web Services and applications for on-demand spatial data visualization and download,” presentation at **ORNL Climate Change Science Institute Science Advisory Board Meeting**, Oak Ridge, TN, August 2017
- Y. Wei, K. Landolt, A. Boyer, SK Santhana Vannan, **Z. Wei**, E. Wang. 2016. “Earth Adventure: Virtual Globe-based Suborbital Atmospheric Greenhouse Gases Exploration,” presentation at **American Geophysical Union (AGU) Fall Meeting**, San Francisco, CA, December 12-16, 2016