

Rapid Preliminary Report:

Flooding of Cultural Heritage Repositories

Due to the Destruction of the Nova Kakhovka Dam on 6 June 2023



Smithsonian
Cultural Rescue Initiative

HeMo

Ukrainian Heritage Monitoring Lab



PlanetScapeAI
Data | Decisions | Impact



CIDCM
CENTER FOR INTERNATIONAL
DEVELOPMENT & CONFLICT MANAGEMENT



Executive Summary: Preliminary analysis discovered flooding at multiple cultural heritage repositories in Ukraine due to the destruction of the Nova Kakhovka Dam on 6 June 2023. This rapid report has been prepared as part of the ongoing effort through the Conflict Observatory to monitor over 28,000 cultural heritage sites in Ukraine following Russia's invasion in February 2022.

Background: The Nova Kakhovka Dam was constructed in 1956 as part of the Kakhovka Hydroelectric Power Plant in Kherson Oblast along the Dnipro River. It supplied cooling water to the Zaporizhzhia Nuclear Power Plant as well as electricity and water to southern Ukraine.¹ The dam was destroyed while controlled by Russia's forces on 6 June 2023, causing extensive flooding and damage to the surrounding villages and landscape.² The information for this report was gathered using moderate-resolution and high-resolution satellite imagery to confirm reports from the Ukrainian Heritage Monitoring Lab (HeMo).

Findings: Preliminary analysis using available moderate-resolution and high-resolution satellite imagery confirms flooding at seven of the museums in areas impacted by the flood. Currently, imagery for five of these sites is available for public release. Analysis is ongoing and additional confirmed damage is likely.

Novokakhovsk Art Gallery Named After Albin Havdzynskyi and the Museum of History of Nova Kakhovka: A comparison of satellite images captured on 5 June 2023 and 6 June 2023 (Image 1) shows extensive flooding in proximity to both museums. The yellow arrow on the left points to the Novokakhovsk Art Gallery Named After Albin Haydzynskyi (Новокаховська картинна галерея ім. А. Гавдзинського Новокаховської міської ради), with the water's edge 120 m north of the gallery. The yellow arrow on the right points to the Museum of History of Nova Kakhovka (Музей історії м. Нова

¹ *BBC* (2023) 'Ukraine dam: What we know about Nova Kakhovka incident', 7 June. Available at: <https://www.bbc.com/news/world-europe-65818705> (Accessed: 8 June 2023); Keaten, J. (2023) 'Ukrainian dam breach: What's happening and what's at stake', *AP News*, 7 June. Available at: <https://apnews.com/article/kakhovka-dam-ukraine-russia-war-whats-at-stake-a417dafefa79462bef5e4e63c0a94c8c> (Accessed: 8 June 2023); Yerushalmy, J. (2023) 'Nova Kakhovka dam: everything you need to know about Ukraine's strategically important reservoir', *The Guardian*, 6 June. Available at: <https://www.theguardian.com/world/2023/jun/06/nova-kakhovka-dam-everything-you-need-to-know-about-ukraines-strategically-important-reservoir> (Accessed: 8 June 2023).

² Lakezina, V. (2023) 'War zone villagers flee after massive Ukraine dam destroyed', *Reuters*, 6 June. Available at: <https://www.reuters.com/world/europe/russia-says-it-thwarts-another-major-ukrainian-offensive-donetsk-2023-06-05/> (Accessed: 8 June 2023); Yerushalmy, J. (2023) 'Nova Kakhovka dam: everything you need to know about Ukraine's strategically important reservoir', *The Guardian*, 6 June. Available at: <https://www.theguardian.com/world/2023/jun/06/nova-kakhovka-dam-everything-you-need-to-know-about-ukraines-strategically-important-reservoir> (Accessed: 8 June 2023).

Каховка) and the white arrow points to water at the eastern side of the building on 6 June 2023 at 11:07 a.m. local time.



Image 1. A comparison of the Novokakhovsk Art Gallery Named After Albin Haydzyński and the Museum of History of Nova Kakhovka between 5 June 2023 and 6 June 2023 shows flooding near both cultural institutions.

Museum of Battle Glory of the Danube Military Flotilla in Kherson: A comparison of satellite images captured on 5 June 2023 and 7 June 2023 (Image 2) shows extensive flooding at the Museum of Battle Glory of the Danube Military Flotilla in Kherson (Музей бойової слави Дунайської військової флотилії) on 7 June 2023 at 11:25 a.m. local time.



Image 2. A comparison of the Museum of Battle Glory of the Danube Military Flotilla in Kherson (Музей бойової

слави Дунайської військової флотилії) between 5 June 2023 and 7 June 2023 shows extensive flooding at the museum.

Literary and Memorial Museum of Anatolii Bakhuta of Nova Kakhovka: A comparison of satellite images captured on 5 June 2023 and 6 June 2023 (Image 3) shows flooding near the Literary and Memorial Museum of Anatolii Bakhuta (Будинок-музей А.П. Бахути) in Nova Kakhovka. The white arrow points to the water's edge reached within 120 m northwest of the museum on 6 June 2023 at 11:07 a.m. local time.



Image 3. A comparison of the Literary and Memorial Museum of Anatolii Bakhuta of Nova Kakhovka between 5 June 2023 and 6 June 2023 shows flooding in proximity of the museum.

House Museum of Ostap Vyshnia in Kryuki Village, Tsurupins'k District, Kherson Region: A comparison of satellite images captured on 5 June 2023 and 6 June 2023 (Image 4) shows the flooding of the House Museum of Ostap Vyshnia in the village of Kryuki (Будинок, в якому жив письменник О. Вишня) on 6 June 2023 at 11:21 a.m. local time.

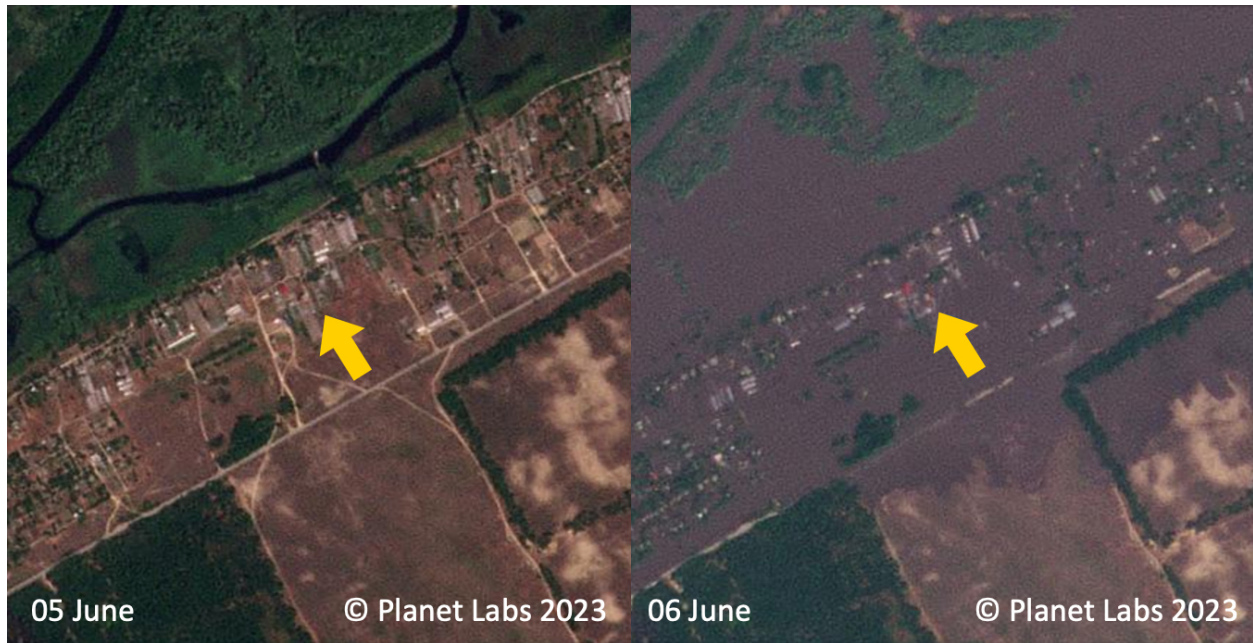


Image 4. A comparison of the House Museum of Ostap Vyshnia between 5 June 2023 and 6 June 2023 shows extensive flooding.

This monitoring effort uses cultural heritage inventory data developed by the Ukrainian Heritage Monitoring Lab (HeMo) in Ukraine, the Smithsonian Cultural Rescue Initiative (SCRI) at the Smithsonian Institution, the Cultural Heritage Monitoring Lab (CHML) at the Virginia Museum of Natural History, and the Center for International Development and Conflict Management (CIDCM) at the University of Maryland under the Cultural Heritage Site List (CHSL) data standards developed by the Penn Cultural Heritage Center (PennCHC) at the University of Pennsylvania Museum with National Science Foundation Grant #1439549, and building damage assessment by PlanetScape Ai. Support was provided by the Bureau of Conflict and Stabilization Operations at the U.S. Department of State. Views expressed in this report represent those of the authors alone and do not necessarily reflect the views of the U.S. government. Learn more at <https://conflictobservatory.org>. Visit <https://www.heritage.in.ua/> for information on HeMo, <https://www.vmnh.net/research-collections/chml> for information on CHML, <https://culturalrescue.si.edu/> for information on SCRI, <https://cidcm.umd.edu> for information on CIDCM, <https://www.penn.museum/sites/chc/> for information on the PennCHC, and <https://planetscapeai.com/> for information on PlanetScape Ai.

CITE THIS REPORT: Rozhko, V., Yamelynets, A., Honek, Y., Zadorozhna, M., Narimanova, N., Hanson, K., Kelly, K., Kelly, M., Marx, A., Meharry, J. E., Daniels, B. I., Aronson, J., Cil, D., Bassett, H., Gunter-Bassett, M., Welsh, W., Fitzgerald, K., and Wegener, C. (2023) ‘Rapid Preliminary Report: Flooding of Cultural Heritage Repositories Due to the Destruction of the Nova Kakhovka Dam on 6 June 2023’, Smithsonian Institution, Smithsonian Cultural Rescue Initiative; Ukrainian Heritage Monitoring Lab; University of Maryland, Center for International Development and Conflict Management; PlanetScape Ai; and Virginia Museum of Natural History, Cultural Heritage Monitoring Lab.